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Microplastics can harm human health and existing national policy responses are inadequate, says first CalSPEC report

SAN FRANCISCO – Scientists shed light on how microplastics in the environment are adversely impacting health and evaluated what governments have done to address the problem in the first report produced by the California State Policy Evidence Consortium (CalSPEC).

The report, "Microplastics Occurrence, Health Effects, and Mitigation Policies: An Evidence Review for the California State Legislature," was developed at the request of the California Senate Committee on Environmental Quality and the Assembly Committee on Natural Resources to help inform the committees' work when considering the impact of microplastics. CalSPEC gathers experts from across the University of California system to address policy questions of interest to the state legislature through non-partisan, evidence-driven reports.

"This report provides new information and careful analysis to help policymakers address the growing problem of microplastics," said CalSPEC Co-director, Richard Kravitz, MD, MSPH. "It also reveals that prevention and mitigation measures across all levels of government have struggled to keep up with the proliferation of microplastics." University of California experts from UC Berkeley, UC Davis Center for Healthcare and Policy Research, UC Riverside, UC San Diego, and UC San Francisco (UCSF) contributed to the report.

UCSF's Program on Reproductive Health and the Environment (PRHE) led the rapid systematic review of nearly 2,000 studies on microplastics to document their impact on health. They found compelling evidence in animal studies that microplastic exposures appear to harm fertility as well as induce biological changes that are markers for increased cancer risk, especially in the digestive tract.

"Microplastics have been increasing in the environment for quite some time and now science is catching up to reveal the impact they are having on our health," said Tracey J. Woodruff, PhD,

MPH, professor and director of PRHE and the EaRTH Center also at UCSF, whose team led the microplastics and health portion of the report.

The report's preliminary findings indicate that microplastics also harm respiratory health.

"The health harms from microplastics revealed in this report could very well be the tip of the iceberg," said Courtney Cooper, MPH, associate scientist with PRHE's Science & Policy Team and first author of the health review. "The evidence supports the need for actions around microplastics prevention and mitigation."

The report also includes a summary of microplastics policies enacted by governments across the U.S. and globally.

"There is an urgent need for action to protect people and the environment from the effects of microplastics. Governments have moved too slowly on policies to prevent or mitigate microplastics pollution," said David Wooley, of UC Berkeley's Goldman School of Public Policy and lead author of the policy section of the report. "California has been a leader in banning microplastic beads in cosmetics and moving toward restrictions on plastic packaging, but more needs be done, particularly in regard to microplastics released from tires, brakes, and clothes washers and dryers."

Wooley added, "The state could also support additional research on microplastic health impacts including, for example, exposure risks in different communities and the impacts of plastic additives carried by or released from microplastics."

ABOUT CalSPEC

CalSPEC is a University of California systemwide collaboration that aims to provide clear evidence for policymakers in the California State legislature. With seed funding from the UC Office of the President, CalSPEC is initially focused on environmental topics identified in cooperation with the California Senate Environmental Quality Committee and Assembly Natural Resources Committee. The CalSPEC team is led by UC Center Sacramento and included scientists and experts from UC Berkeley, UC Davis, UC Riverside, UC San Diego and UCSF.

The report can be found at: https://uccs.ucdavis.edu/calspec/2022-research-topic