Are my cosmetics a health risk? Seeking straight answers to tricky questions

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Lessons from the field of medicine could help provide clearer answers to questions about chemical safety, according to researchers. Credit: Lancaster University

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Are the chemicals in my baby's plastic bottle harmful? Can cosmetics cause cancer? Which pesticides are safe? The aim of scientific research is to answer questions like these, but what happens when two or more studies produce conflicting results?

Since the 1990s medical science has relied upon a process called 'systematic review' as a means of weighing up the available evidence and coming up with a reliable answer. It saves time and resources, avoids unnecessary research and, in the case of medicine, saves lives.

In a special issue of *Environment International*, guest edited by Lancaster University, a team of international scientists is now arguing for this approach to be taken up in chemical risk assessment in a bid to help give clearer answers to chemical controversies.

Guest editor Paul Whaley of Lancaster University Environment Centre said: "When it comes to determining the risk which chemicals pose to human health and the planet, scientists sometimes struggle to come up with a clear answer because there is no universally accepted system for weighing up the available evidence. This used to be a problem for medicine until they began to introduce a new system for sifting through existing studies to come to a scientifically reliable answer to a particular question.

"In the late '60s doctors thought that if you gave a pregnant woman expecting to give birth prematurely a dose of steroids, you could reduce respiratory illness in the infant. Research involving more than 1,000 pregnant women revealed a clear clinical benefit but because the results weren't communicated quickly, it didn't filter into general practice. Doctors called for more studies. This rumbled on for 17 years, until a systematic review revealed clear clinical benefits, and it's now standard

practice to prescribe steroids.

"This example shows how effective systematic review can be in helping settle scientific dispute. It also shows how much unnecessary and low quality research can be done at the expense of an intervention being put in place."

Dr Crispin Halsall, fellow guest editor said: "Scientists working in the field of Chemical research believe this approach will be fundamental in the future to resolving some of the biggest controversies in chemical risk assessment."

One such controversy is whether the chemical triclosan, which has been banned in soaps in the EU but is still commonly used in cosmetics, is toxic to humans. One of the articles in the special issue is the first systematic review in environmental health to show that triclosan is "possibly toxic" based on its adverse impacts on thyroid hormones. Thyroid hormone disruption indicates developmental toxicity.

Dr Paula Johnson, the lead author of the paper and leader of the California Safe Cosmetics Program at the California Department of Public Health, said: "Consumers generally seem to believe that products available for purchase are proven to be safe, and that the government would prevent unsafe products from being sold to us. This is not true. ..Products may contain ingredients with very limited safety testing or, for example, no data on reproductive effects from prenatal exposure. Agencies should adopt systematic review methods to evaluate the toxicity of chemicals. The public could greatly benefit from this, in terms of health and simply from a consumer right-to-know perspective."

More information: *Environment International*, , www.sciencedirect.com/science/ … 4120/vsi/10PVGN21HR3

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