

# Call for national approach on kids' cancer exposure

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Australia needs to decide whether to adopt a uniform national approach to the rules on exposing babies and children to cancer-causing chemicals, an environmental researcher says.

The nation currently lacks a clear stance on whether to adopt extra precautions to reduce babies' and [children's](#) exposure to carcinogenic substances, Dr Belinda Goldsworthy of ENVIRON Australia will tell the CleanUp 2013 conference in Melbourne today.

"Researchers have found that babies and children may have a higher risk of cancer than adults when exposed to mutagenic carcinogens," says Dr Goldsworthy. "These are chemicals that pollute the air, soil and water and have the capacity to cause cancer and damage DNA, resulting in [genetic mutations](#)."

"Children can be exposed to these chemicals at home or when they play in the garden – they can eat polluted soil or smear it on their skin. Once they're exposed to the toxins, they are also less able to get rid of them – they have a higher body surface area to volume ratio and they're smaller than adults, therefore the chemicals are more concentrated in their bodies."

"Furthermore, certain components of their immune system are not fully developed. Children also have more frequent cell division during development and therefore there is less time for DNA to repair, which makes them particularly vulnerable to this type of carcinogen."

In response to the research findings, the US Environmental Protection Agency (EPA) listed a group of mutagenic carcinogens that require special consideration when assessing health risks to children and babies, Dr Goldsworthy explains. "The agency then made it mandatory to apply the 'age-dependent adjustment factors' (ADAF) when assessing people's risk of exposure to these chemicals.

The California EPA and Minnesota Department of Health went one step further and applied child-protective factors to all carcinogens, not just mutagens, unless there is evidence that they are not needed. There are calls within the US for the US EPA to also adopt this approach.

"What it means is they adjust the risk levels to account for the higher risk for babies and children. For babies up to 2 years old, the cancer potency for mutagenic toxins is 10 times greater than for adults and for children between 2 and 16 years, they are 3 times higher. So if the risk to kids is 10 or 3 times that of an adult, applying the ADAF means decreasing the tolerable daily dose accordingly to protect them."

As a result, the amount of carcinogens permitted in air, soil and water in the US is much lower than before. Dr Goldsworthy explains: "Adopting ADAF means that lower concentrations of these carcinogens will be allowed in the environment, triggering a greater call to clean up the environment."

For instance, the level of benzo(a)pyrene – a carcinogen released from car fumes or coal fires – to trigger clean-up in soil in Australia is 70 per cent lower once ADAF is applied to protect children, she says.

While the US has mandated the use of ADAF in its risk assessments, Australia has not yet done the same, says Dr Goldsworthy.

"Although Australia's health authorities recognise and acknowledge the

use of ADAF in Australia, they suggest that risk assessors apply it on a case-by-case basis," she says. "So the decision of whether to apply the ADAF – to account for the higher risk of cancer for babies and children – is now left to the risk assessor."

"This causes a lot of uncertainty and confusion as there is no consistent approach nationwide, and there seems to be conflicting views among risk assessors of when to apply the ADAF, if at all," says Dr Goldsworthy. "We need a firm stance because, as shown in the US, consideration of ADAF can potentially make a big difference to the actual outcome."

"If we adopt a standard approach instead of leaving the decision to individual risk assessors, we will have equal protection for all Australians. It will also help industry to solve contamination problems more quickly and consistently because they will know where the limits are."

Dr Goldsworthy will deliver her presentation "Assessment of mutagenic [carcinogens](#) in Australia" at 4.30pm, 16 September 2013.

**More information:** [www.cleanupconference.com/](http://www.cleanupconference.com/)

Provided by CRC for Contamination Assessment and Remediation of the Environment

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