Beware: Children can passively 'smoke' marijuana, too

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Relaxing with a joint around children is not very wise. Not only do youngsters inhale harmful secondary smoke in the process, but the psychoactive chemicals in the drug are taken up by their bodies as well. This warning comes from Karen Wilson of the Icahn School of Medicine at Mount Sinai and the American Academy of Pediatrics Julius B. Richmond Center of Excellence in the US. She led the first study showing that it is possible to pick up traces of THC, the primary psychoactive chemical in marijuana, in the urine of children exposed to secondary marijuana smoke. The findings are published in Springer Nature's journal *Pediatric Research*.

The two primary active components in marijuana are the psychoactive chemical ?9-tetrahydrocannabinol (THC), and the nonpsychoactive cannabidiol (CBD). Previous analytical methods were mostly developed to measure biomarkers of marijuana in users themselves. In this study, a new and more sensitive analytic method was developed and used by the US Centers for Disease Control and Prevention (CDC) to quantify the trace biomarkers resulting from secondhand marijuana smoke exposure.

The method was used to analyze the urine samples of 43 babies between the ages of one month and two years who were hospitalized with bronchiolitis in Colorado in the US between 2013 and 2015. Their parents also completed a survey about their marijuana smoking habits. The urine samples were analyzed for traces of marijuana metabolites (measured as levels of COOH-THC) and also for cotinine, a biomarker that indicates exposure to tobacco smoke.

COOH-THC was detectable in 16 percent of the samples, at concentrations between 0.04 and 1.5 nanograms per milliliter of urine. Higher concentrations were found in the urine of non-white children compared with white children.

"While documenting the presence of metabolites of THC in children does not imply causation of disease, it does suggest that, like tobacco smoke, marijuana smoke is inhaled by children in the presence of adults who are using it," says Wilson.

In 56 percent of children with detectable COOH-THC levels, more than 2.0 nanograms of cotinine per milliliter of urine were also measured. This indicates that children exposed to marijuana smoke are also more likely to be exposed to tobacco smoke, which increases their risk for cognitive deficits and respiratory ailments.

According to Wilson, more research is needed to investigate if secondhand marijuana smoke exposure is also a health risk. She believes that further high-sensitivity testing will give researchers the opportunity to do so more effectively, and that funds and human resources should be prioritized for such investigations.

"This research will help inform appropriate educational materials and outreach to parents and caregivers who use both marijuana and tobacco in the presence of their children," she says.

Wilson also supports the inclusion of a parent report screening question for institutions in areas where marijuana is legal, so that those who report household marijuana smoking can be counseled on how to reduce potentially harmful secondhand smoke exposure of their children.

More information: Karen M. Wilson et al, Detecting biomarkers of secondhand marijuana smoke in young children, *Pediatric Research* (2016). DOI: 10.1038/pr.2016.261

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