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Passive exposure to bleach at home linked to higher childhood infection rate

Effects modest, but widespread use of bleach adds up to public health concern, say researchers

Passive exposure to bleach in the home is linked to higher rates of childhood respiratory and other infections, suggests research published online in ***Occupational & Environmental Medicine***.

Although modest, the results are of public health concern in light of the widespread use of bleach in the home, say the researchers, who call for further more detailed studies in this area.

The researchers looked at the potential impact of exposure to bleach in the home among more than 9000 children between the ages of 6 and 12 attending 19 schools in Utrecht, The Netherlands; 17 schools in Eastern and Central Finland; and 18 schools in Barcelona, Spain.

Their parents were asked to complete a questionnaire on the number and frequency of flu; tonsillitis; sinusitis; bronchitis; otitis; and pneumonia infections their children had had in the preceding 12 months. And they were asked if they used bleach to clean their homes at least once a week.

Use of bleach was common in Spain (72% of respondents) and rare (7%) in Finland. And all Spanish schools were cleaned with bleach, while Finnish schools were not.

After taking account of influential factors, such as passive smoking at home, parental education, the presence of household mould, and use of bleach to clean school premises, the findings indicated that the number and frequency of infections were higher among children whose parents regularly used bleach to clean the home in all three countries.

These differences were statistically significant for flu, tonsillitis, and any infection.

The risk of one episode of flu in the previous year was 20% higher, and recurrent tonsillitis 35% higher, among children whose parents used bleach to clean the home.

Similarly, the risk of any recurrent infection was 18% higher among children whose parents regularly used cleaning bleach.

This is an observational study, so no definitive conclusions can be drawn about cause and effect. Furthermore, the authors highlight several caveats to their research.

For example, they didn't have any information on the use of other cleaning products used in the home, and only basic information was gathered on the use of bleach in the home, making it difficult to differentiate between exposure levels.

But their findings back other studies indicating a link between cleaning products and respiratory symptoms and inflammation, they say.

And they add: "The high frequency of use of disinfecting cleaning products, caused by the erroneous belief, reinforced by advertising, that our homes should be free of microbes, makes the modest effects reported in our study of public health concern."

By way of an explanation for the associations they found, they suggest that the irritant properties of volatile or airborne compounds generated during the cleaning process may damage the lining of lung cells, sparking inflammation and making it easier for infections to take hold. Bleach may also potentially suppress the immune system, they say.

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