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## Are Household Chemicals Connected To The Rise In Asthma?

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Frequent use of household cleaning products and other chemicals in the home could be linked to cases of asthma among Britain's children.

A new study of respiratory health among young children has shown a clear connection between breathing problems and their mothers' use of a range of common products such as bleach, paint stripper and carpet cleaners.

In the 10 per cent of families who used the chemicals most frequently, the children were twice as likely to suffer wheezing problems as the families where they were used least.

The exact chemicals involved have not been identified, but the researchers say they have established a clear link between use of chemicals in the home and wheezing in young children - which can go on to develop into asthma

The findings, published today in the journal *Thorax*, are based on research involving 7,019 families from the Children of the 90s project at the University of Bristol.

The report's author Dr Andrea Sherriff says that other studies throughout Europe and the USA have demonstrated an increased risk of asthma in people working as cleaners.

"While research has concentrated on the working environment, there is virtually no data available on the effect of frequent use of chemical -based products in the home on the respiratory health of young children.

"It has been put forward that the indoor air environment may play an important role in the increasing asthma problem due to the fact that people, especially mothers with young children, spend so much of day indoors."

During the study, pregnant women were asked to report how often they used a list of chemical-based products.

The 11 most common were disinfectant (used by 87.4%), bleach (84.8%), carpet cleaner (35.8%), window cleaner (60.5%), dry cleaning fluid (5.4%), aerosols (71.7%), turpentine/white spirit (22.6%), air fresheners - spray, stick or aerosol (68%), paint stripper (5.5%), paint or varnish (32.9%) and pesticides/insecticides (21.2%).

For each family - researchers calculated the total chemical burden according to how frequently they used each product - then they compared it with each mother's report on whether her child had experienced wheezing with whistling on his or her chest

Upto the age of 3 ½ years, 71.2% children never wheezed, 19.1% appeared to wheeze as babies but not when they were older, 3.5 per cent developed wheezing problems after the age of 2 ½ and 6.2 per cent (432 children) had persistent wheeze throughout.

After taking into account a range of other factors - including whether the parents smoked, damp housing, and family history of asthma - the study found a significant association between the children who suffered persistent wheezing and the mother's use of these chemicals. The more frequently the chemicals were used - the higher the risk that the young child would have persistent wheezing.

Dr Sherriff said: "These findings suggest that children whose mothers made frequent use of chemical-based domestic products during pregnancy were more likely to wheeze persistently throughout early childhood, independent of many other factors.


"Further research will identify whether this effect persists into later childhood and will attempt to identify the specific components responsible."


Sherriff A, Farrow A, Golding J, ALSPAC Study Team, Henderson AJ. Frequent use of chemical household products is associated with persistent wheezing in preschool-age children. *Thorax* 2005; 60: 45-9.


## NOTES




To determine whether a single class of product was responsible for the observed effect, the Total Chemical Burden score was recalculated 11 times by sequential removal of each individual product category followed by repeat analysis of the score containing the remaining 10 products. In all cases, there was no significant change in effect sizes suggesting that no single product was implicated.

 It was not possible to analyse the individual chemical agents in these data, as many products contain more than one class of chemical.

 Over the past two decades, consumption of household cleaning products has risen dramatically in the UK. Since 1994, according to the Office for National Statistics, expenditure on household cleaning materials (other than soap) has increased by 60% in real terms (fixed 1995 prices).

 ALSPAC The Avon Longitudinal Study of Parents and Children (also known as Children of the 90s) is a unique ongoing research project based in the University of Bristol. It enrolled 14,000 mothers during pregnancy in 1991-2 and has followed most of the children and parents in minute detail ever since.

 The ALSPAC study could not have been undertaken without the continuing financial support of the Medical Research Council, the Wellcome Trust, and the University of Bristol among many others.

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