



## Shaklee Health Sciences e-Bulletin

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### Health Hazards Associated With Household Cleaners

Recent research findings suggest that manufacturers of household cleaners have too much freedom in the way they formulate the products we use in our homes. In fact, studies on many of the ingredients commonly used in household products conclude that these chemicals can be unsafe and could have long term health consequences. Could it be that some of these chemicals might actually be contributing to the significant rise in serious health conditions such as asthma that have occurred in recent years?

In this bulletin, we'll explore the increasing exposures to dangerous chemicals in household products, especially for children. We'll also present research linking household chemicals to asthma and list other health risks associated with cleaning product exposures. Finally, we'll provide some basic advice for seeking alternative products that are truly safe and effective for you and your family.

### Children Are at Greater Risk for Chemical Exposures

Let's start with the risks that chemicals in household cleaners present to children. It's no secret that children are highly vulnerable to chemical toxins. Children spend a good deal of time putting things in their mouths, so there's always the potential for ingestion of chemical residues. Pound for pound, children drink more water, eat more food, and breathe more air than adults.<sup>1</sup> The implication here is that children will have substantially heavier exposures than adults to toxins in water, food, or air. And yet, so many of the popular and most trusted brands of household cleaners continue to include harsh chemicals in their formulations.

Since a baby's immune system and metabolic pathways are immature, this affects the child's ability to metabolize, detoxify, and excrete chemicals, and to counteract toxic challenges. In an adult, a blood-brain barrier insulates the brain from many of the potentially harmful chemicals circulating through the body. But in an infant, that barrier isn't fully developed, so early exposures may be especially risky.

Children also have more time to develop chronic diseases triggered by early chemical exposures. Some diseases related to environmental toxins may require decades to develop, so exposure during childhood may increase the health risks later in life. Some scientists also believe that maternal exposure to toxic chemicals during pregnancy can have developmental consequences for the fetus. Since growth is so rapid at this time, early toxic exposures may have a significant impact on further development.

### Household Cleaners and Asthma Risk

More than three million Canadians have asthma, according to the Asthma Society of Canada, and about half a million of those are children ages four years and older. Asthma, a chronic lung disease, is the leading cause of school absences and accounts for more hospitalizations in children than any other chronic illness. It's the most common chronic childhood disease in the developed world and has become even more commonplace in the last three decades.

Asthma, which can be fatal, is characterized by wheezing, shortness of breath, tightness in the chest, and an irritated cough. The exact cause of this disease is not known, but asthma

symptoms and attacks usually occur after exposure to such "triggers" as allergens, aerosolized chemicals, irritant fumes or gases, viral respiratory infections (e.g., a cold), or exercise.

When people with asthma are exposed to triggers, the airways in their lungs become inflamed and swollen. As a result, the airways start to narrow and it becomes more difficult to breathe. During some asthma episodes or attacks, the muscles around the airways can also tighten and the airways can produce mucus. These conditions make it even harder to breathe.

Although there's no cure, asthma can often be controlled by avoidance of triggers, appropriate dietary and supplement strategies, and, of course, medication as prescribed.

### **Recent Research Linking Cleaning Products to Asthma**

Avoiding contact with environmental triggers is emerging as a critical strategy, and one area of great concern happens to be the chemicals found in household products. A study published in *Thorax* found that many common household cleaners and appliances give off fumes, which can potentially increase the risk of developing asthma in children.<sup>2</sup> The authors concluded that "domestic exposure to volatile organic compounds (VOCs) at levels even below currently accepted recommendations may increase the risk of childhood asthma."

Unfortunately, VOCs, which are found in many household products, may also be found in house paint, flooring, and furniture.

Research has also shown that women who are employed in domestic cleaning are at increased risk for symptoms of obstructive lung disease. One study reported that 25% of the asthma cases found in more than 4,500 women employed in the domestic cleaning industry could be attributed to their domestic cleaning work.<sup>3</sup> The authors conclude that domestic cleaning work has an important public health impact, probably involving not only professional cleaners but also people undertaking cleaning tasks at home.

Another recent study conducted in Spain found that household cleaning was the occupation most frequently associated with asthma.<sup>4</sup> Environmental allergens were identified as causal agents in 31% of the cases, and 26% of adult-onset asthma were associated with the occupation of household cleaning, a main determinant of development of chronic symptoms.

### **Other Health Hazards Related to Cleaning Product Exposures**

Asthma and related conditions are not the only risks associated with ingredients in commonly used household products. According to News-Medical Net at the University of California, a person who spends 15 minutes cleaning scale off shower walls could inhale three times the "acute one-hour exposure limit" for glycol-ether-containing products set by the California Office of Environmental Health Hazard Assessment. Inhalation, ingestion, skin, or eye exposure to glycol-ethers has been linked to irritation and potential tissue damage.

Butyl cellosolve is another potentially toxic chemical in the same glycol-ether family of chemicals, and it's found in household cleaning products including all-purpose, abrasive, and glass cleaners. Ingesting large amounts of cleaning agents containing butyl cellosolve may cause breathing problems, low blood pressure, low hemoglobin levels, acidic blood, and blood in the urine.

Exposure to high levels of ammonia, found in glass cleaners, may be irritating to your skin, eyes, throat, and lungs, and can cause coughing and burns. Also, asthma sufferers may be more sensitive to breathing ammonia than others. Getting ammonia in your eyes can cause burns and even blindness.

A chemical known as hypochlorite, found in common household bleach, causes more poisoning exposures than any other household cleaning substance. According to a report from the U.S. Poison Control Center's National Poisoning and Exposure Database, hypochlorite was the source

of over 50,000 poisonings in 2005 alone. Automatic dishwasher detergents may also contain sodium hypochlorite, and the fumes that are released in the steam can cause eye irritation.

Drain cleaners and oven cleaners are some of the most hazardous products in our homes. They may contain lye or sodium hydroxide, which can cause severe corrosive damage to eyes, skin, mouth, and stomach if swallowed.

One of the most dangerous cleaning products, toilet bowl cleaners, may contain chlorine or hydrochloric acid. Even brief exposure to low levels of hydrochloric acid vapour can result in throat irritation. And high exposure can result in rapid breathing, narrowing of the bronchioles, blue colouring of the skin, accumulation of fluid in the lungs, and even death.

There's a long list of dangerous chemicals that are under most sinks in North America; they're even in some products that claim to be green. One of the best places to find information about chemicals in household products is through Health Canada's Chemical Substances Portal, available at [www.chemicalsubstanceschimiques.gc.ca/interest-interet/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/interest-interet/index_e.html). To learn about protecting your children's health, go to [www.chemicalsubstanceschimiques.gc.ca/child-enfant/index\\_e.html](http://www.chemicalsubstanceschimiques.gc.ca/child-enfant/index_e.html). To help build children's awareness of potentially dangerous chemicals found throughout the house, visit the U.S. Environmental Protection Agency's Kids Home Tour at [www.epa.gov/kidshometour](http://www.epa.gov/kidshometour).

### **Making Smart Product Choices for a Clean and Healthy Home**

Now is the time to really get clean, to clear out all your traditional household products, and to opt for green, effective, alternative cleaning choices that will help you clean your home and still maintain a healthy home environment. Be an informed consumer and look for safe alternatives to traditional cleaning products that still offer a lot of muscle without using caustic chemicals. Seek out products that are:

- Non-toxic
- Free of harmful fumes
- Hypoallergenic
- Made without volatile organic cleaning compounds (VOCs)
- Formulated without hazardous chemicals such as:
  - ❖ Kerosene
  - ❖ Phenol
  - ❖ Cresol
  - ❖ Lye
  - ❖ Hydrochloric acid
  - ❖ Sulfuric acid
  - ❖ Sulfamic acid
  - ❖ Petroleum distillates
  - ❖ Ammonia
  - ❖ Sodium hydroxide
  - ❖ Butyl cellosolve
  - ❖ Phosphoric acid
  - ❖ Formaldehyde
  - ❖ Chlorine bleach
  - ❖ Morpholine

And, finally, look for a solid company with a rock-solid track record of offering safe, powerful, smart, and green cleaning choices that give your family the best opportunity to live in a naturally clean and healthy home.

## References

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