

Women are disproportionately burdened by exposures to toxic chemicals in cleaning products. While gender roles and societal expectations have changed over time, a national study showed that women still complete over 70% of the housework in the average home¹ and the Economic Policy Institute reported that over 95% of house cleaners are female.²

This is why it is concerning that various chemicals widely used in cleaning products are known reproductive toxins linked to reproductive harm, including decreases in fertility, birth defects, premature birth and other effects. None of these chemicals are essential to cleaning performance. They are posing unnecessary additional hazards to people of reproductive age who commonly use them. Safer alternatives which do not pose risks of reproductive harm should be used instead.

Chemicals of concern include:

- ✿ **Butylphenyl Methylpropional (Lilial)** is a fragrance chemical used widely in laundry products, dish soap, air fresheners, multipurpose cleaners, glass cleaners, and carpet deodorizers. It is banned for use in products sold in the EU and may cause harm to a fetus during pregnancy and could affect a person's ability to get pregnant.
- ✿ **Glycol ethers**, such as 2-butoxyethanol, are solvents commonly found in glass cleaners and all-purpose spray cleaners that are linked to behavioral concerns such as attention deficit and hyperactivity in children whose mothers reported exposure to glycol ethers during pregnancy.
- ✿ Synthetic musks like **Tetramethyl Acetyloctahydronaphthalenes (OTNE)** are found in laundry products and dish soap, and have been identified as reproductive toxicants in studies on mice, but there is no research available to tell us how OTNE may be affecting human reproductive health.
- ✿ **DEP (diethyl phthalate)** and other phthalates are carriers for fragrance in glass cleaners, deodorizers, laundry detergents and fabric softeners; they are linked to adverse effects on male children, reduced sperm count in adult men, and higher risk of preterm birth.

The effects of chemical exposure are sometimes not apparent until the next generation. Many scientists now believe that chemical exposure, even if you are exposed to small amounts of a chemical, can harm the reproductive system. When a pregnant person is, often unknowingly exposed to toxic chemicals, this exposure can also harm the developing fetus and lead to developmental problems, such as birth defects, low birth weight, impacts on brain development or other harmful outcomes. Research has shown the following:

- ✿ Studies have found higher rates of birth defects such as cleft palates, neural tube defects, and Down Syndrome in the children of cleaning workers.^{3,4}
- ✿ Preliminary studies show significant deficiencies in the brain health of the children whose mothers had the highest exposures to glycol ethers including poorer performance on intelligence tests⁵ and motor function, particularly the ability to inhibit physical actions.⁶
- ✿ Toxic chemicals from household cleaners are commonly detected in breastmilk, including synthetic musks, OTNE and Galaxolide.^{7,8,9} Recent studies found evidence of glycol ethers present in the urine of 90% of the pregnant mothers they tested.¹⁰
- ✿ In the United Kingdom, a study of pregnant women showed a link between the use of air fresheners and aerosol sprays and an increase in headaches and depression in the mothers as well as ear infections and diarrhea in their babies.¹¹

Low-Income and Communities of Color at Increased Risk of Exposures from Cleaning Products:

Many cleaning product users already face numerous cumulative burdens on their health based on where they live, where they work, access to quality and affordable healthcare, pollutants in their environments, and social, racial and gender injustices. Not only are women disproportionately impacted by cleaning products, but nationally, over 60% of housekeeping cleaners are Latinx, while another 6% are African American.¹² Low-income communities and people of color, including African Americans, Latinxs, and Asian Americans comprise a majority of the population in neighborhoods where high risk chemical and commercial hazardous waste facilities are located in the United States.¹³ The results of these and additional cumulative impacts particularly on low-income and communities of color are devastating. In the United States:

- ☘ Communities living on the fenceline (next to chemical facilities) have higher rates of respiratory illnesses as asthma, chronic obstructive pulmonary disease (COPD), heart disease, hypertension, and diabetes.¹⁴ Any of these conditions can complicate a healthy pregnancy.
- ☘ According to the CDC, Black and indigenous women are two to four times more likely to die from pregnancy-related causes compared with white peers.
- ☘ Black women are more likely to have premature births and babies born with low birth weights.¹⁵
- ☘ Black, Hispanic and indigenous women are more likely to have gaps in insurance around the time of pregnancy than white women.¹⁶
- ☘ Black women are 34% more likely to die of breast cancer than white women¹⁷, and lupus, an autoimmune disease, affects Black women at three times the rate of white women. Lupus also disproportionately affects women of Latinx, Asian and Native American descent.¹⁸

In the United States, the maternal mortality (deaths from complications during or following pregnancy and childbirth) claims the life of roughly 700 women per year.¹⁹ While other country's maternal mortality rates, particularly those of wealthy countries have been falling, this is not the case in the United States.²⁰ For Black, American Indian and Alaska Native women these disparities are even more devastating and deadly. Factors for these fatalities are compounded, complex and under-researched, but the role of disproportionate environmental exposures, combined with various social, racial, and gender injustices that directly impact a person's health and well-being, cannot and should not be overlooked when addressing maternal mortality.

Given the numerous factors and cumulative impacts associated with these increased risks and health disparities, exposure to toxic chemicals found in cleaning products should not be adding to the problem.



Reducing Exposures:

We need stronger worker protection laws to ensure the safety and health of people who use cleaning products. In addition, manufacturers have much more work to do to establish, document and publicly report the strict safety standards they will apply to determine which chemicals are appropriate to use in products, and which must be replaced with safer alternatives.

In the absence of strong federal laws and corporate policies to ensure the safety of cleaning products, there are measures individuals can immediately take to protect their health.

- 🌿 Reduce or eliminate your use of fragranced cleaning products.
- 🌿 Read cleaning product labels/go to the product brand website and check whether your favorite cleaning product contains any of the chemicals mentioned above.
- 🌿 Contact cleaning product manufacturers to ask them not to use toxic chemicals, like those listed here, in their products.
- 🌿 Make your own products using safer ingredients like vinegar and baking soda. To find recipes visit www.womensvoices.org
- 🌿 Use EWG's safe cleaning products database to search for cleaning products that use safer ingredients. Products are given an A, B, C, D or F rating for safety.
- 🌿 Find resources and trainings for people who clean for a living from California based IDEPSCA, and New York-based Make the Road New York in both English and Spanish.
- 🌿 If you employ a domestic cleaning worker, check out the domestic worker resources from Hand to Hand, which includes tips for helping to protect the health of the people working in your home. <https://domesticemployers.org/resources-and-faqs/>
- 🌿 Look for products with the EPA's Safer Choice label, which lets you know the ingredients have been screened for safety by a 3rd party. Other 3rd party certification programs include GreenSeal and EcoLabel. (Note: while 3rd party certifications can help you find safer products, no certification is perfect.)

For additional studies, resources, and information on chemicals of concern found in cleaning products, view WVE's report, *Beyond the Label* at: womensvoices.org/beyondthelabel

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- [1] Bird, C. 1999. Gender, Household Labor, and Psychological Distress: The Impact of the Amount and Division of Housework. *Journal of Health and Social Behavior* 40(1): 32-45.
- [2] Economic Policy Institute (2020) Domestic Workers Chartbook. May 2020. Available at: <https://www.epi.org/publication/domestic-workers-chartbook-a-comprehensive-look-at-the-demographics-wages-benefits-and-poverty-rates-of-the-professionals-who-care-for-our-family-members-and-clean-our-homes/>
- [3] Chevrier C., Dananche B., Bahau M., Nelva A., Herman C., Francannet C., Robert-Gnansia E. and Cordier S. (2006) Occupational exposure to organic solvent mixtures during pregnancy and the risk of non-syndromic oral clefts. *Occupational and Environmental Medicine*. Vol. 63, pp:617-623. 2006.
- [4] Olshan, A.F., Baird, P.A., Teschke, K. (1989) Paternal Occupational Exposures and the Risk of Down Syndrome. *American Journal of Human Genetics*. Vol. 44: 646-651. 1989. <http://www.ncbi.nlm.nih.gov/pubmed/2523192>
- [5] Béranger R, Garlantézec R, Le Maner-Idrissi G, Lacroix A, Rouget F, Trowbridge J, Warembourg C, Monfort C, Le Gléau F, Jourdin M, Multigner L, Cordier S, Chevrier C. Prenatal Exposure to Glycol Ethers and Neurocognitive Abilities in 6-Year-Old Children: The PELAGIE Cohort Study. *Environ Health Perspect*. 2017 Apr;125(4):684-690.
- [6] Binter AC, Bannier E, Simon G, Saint-Amour D, Ferré JC, Barillot C, Monfort C, Cordier S, Chevrier C, Pelé F. Prenatal exposure to glycol ethers and motor inhibition function evaluated by functional MRI at the age of 10 to 12 years in the PELAGIE mother-child cohort. *Environ Int*. 2019 Dec;133(Pt A):105163. doi: 10.1016/j.envint.2019.105163. Epub 2019 Sep 11. PMID: 31518935.
- [7] Yin J, Wang H, Li J, Wu Y, Shao B. (2016) Occurrence of synthetic musks in human breast milk samples from 12 provinces in China. *Food Addit Contam Part A Chem Anal Control Expo Risk Assess*. 2016 Jul;33(7):1219-27.
- [8] Yin J, Wang H, Zhang J, Zhou N, Gao F, Wu Y, Xiang J, Shao B. The occurrence of synthetic musks in human breast milk in Sichuan, China. *Chemosphere*. 2012 May;87(9):1018-23.
- [9] Reiner JL, Wong CM, Arcaro KF and Kannan K. (2007) Synthetic Musk Fragrances in Human Milk from the United States. *Environmental Science and Technology*. Vol. 41, No. 11, pp: 3815-3820. 2007.
- [10] Béranger R, Garlantézec R, Le Maner-Idrissi G, Lacroix A, Rouget F, Trowbridge J, Warembourg C, Monfort C, Le Gléau F, Jourdin M, Multigner L, Cordier S, Chevrier C. Prenatal Exposure to Glycol Ethers and Neurocognitive Abilities in 6-Year-Old Children: The PELAGIE Cohort Study. *Environ Health Perspect*. 2017 Apr;125(4):684-690.
- [11] <https://www.newsscientist.com/article/mg16322022-700-far-from-fragrant/>
- [12] Economic Policy Institute (2020) Domestic Workers Chartbook. May 2020. Available at: <https://www.epi.org/publication/domestic-workers-chartbook-a-comprehensive-look-at-the-demographics-wages-benefits-and-poverty-rates-of-the-professionals-who-care-for-our-family-members-and-clean-our-homes/>
- [13] Bullard, R; Saha, R; Wright, B. 2007. Toxic Wastes and Race and Twenty 1987-2007: Grassroots Struggles to Dismantle Environmental Racism in the United States. Report for United Church of Christ Justice & Witness Ministries. Available: <http://www.ejnet.org/ej/twart.pdf>
- [14] EJ 4 All (2021) Life at the Fenceline: Understanding Cumulative Health Hazards in Environmental Justice Communities. Available at: <https://ej4all.org/life-at-the-fenceline>
- [15] March of Dimes Fact Sheet: Racial and Ethnic Disparities in Birth Outcomes. Available at: https://www.marchofdimes.org/March-of-Dimes-Racial-and-Ethnic-Disparities_feb-27-2015.pdf
- [16] "Racial and Ethnic Disparities in Perinatal Insurance Coverage." *Obstetrics and Gynecology*. DOI: 10.1097/AOG.00000000000003728
- [17] Center for Disease Control and Prevention. 2010. Finding Solutions to Health Disparities: At A Glance 2010. Available: <http://www.cdc.gov/chronicdisease/resources/publications/AAG/reach.htm>
- [18] Centers for Disease Control and Prevention, Office of Minority Health and Health Disparities. 2008. Eliminate Disparities in Lupus (Online Factsheet). Available: <http://www.cdc.gov/omhd/amh/factsheets/lupus.htm>
- [19] Petersen EE, Davis NL, Goodman D, et al. (2019) Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017. *MMWR Morb Mortal Wkly Rep* 2019;68:423–429
- [20] World Health Organization (2019) Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Licence: CC BY-NC-SA 3.0 IGO