SAFER CHEMICALS:
Good for Health, Good for Health Care

People are exposed every day to a complex mixture of industrial chemicals, some of which increase the risk of certain diseases and conditions, including some kinds of cancer, birth defects, asthma, and infertility.[1,2] While a growing body of evidence links chemical exposures to negative health outcomes, the federal law created to protect the public from hazardous chemicals—the Toxic Substances Control Act (TSCA)—has not been updated since its passage in 1976. The President's Cancer Panel recently singled out TSCA as the most egregious example of ineffective regulation of environmental contaminants and called for its overhaul.[3]

Widespread Chemical Exposures: Implications for Global Health

The production and use of chemicals in commerce has grown dramatically since World War II, with the U.S. importing or producing approximately 42 billion pounds daily for use in countless products for manufacturing, businesses, homes, schools, and communities. Their use is so widespread that synthetic chemicals now contaminate all global ecosystems and can be found in our food, drinking water, and even household dust.

The Centers for Disease Control and Prevention's (CDC) *National Report on Human Exposure to Environmental Chemicals*—an ongoing analysis of over 200 environmental chemicals in the blood and urine of a representative sample of the U.S. population—demonstrates our widespread exposure to chemicals. Notably, pregnant women and fetuses are routinely exposed to hundreds of synthetic chemicals, as evidenced through biomonitoring studies.[4,5,6]

Some people experience greater chemical exposures according to where they live or work. Certain workers are at increased risk of chemically-related disease because their exposures occur at much higher frequency, intensity, and duration than those that occur in the ambient environment.[7] Continual exposures to cleaners and disinfectants, chemicals of concern in medical devices, flame retardants and formaldehyde in furniture, and solvents and formaldehyde in labs, for example, may explain higher incidences of some diseases among health care workers.

Health Care Institutions Reducing Chemical Exposures

Health care institutions across the country have reduced exposures to harmful chemicals by eliminating known and likely hazards and switching to safer alternatives. These institutions reduce their disposal costs and liability while improving the overall health of employees, patients, and communities. Yet, the lack of information on the chemical constituents in products and absence of safety testing of those constituents hamper the sector's efforts to implement changes. Reform of TSCA must accompany the efforts underway by those in the marketplace.

Health Effects Linked to Chemical Exposures

Exposures to industrial chemicals increase the risk of a range of common diseases and conditions, many of which are rising in incidence. For example, over the past two decades, the rates of some cancers rose significantly,[8,9] including kidney, liver, thyroid, esophageal, and testicular cancer in men; non-Hodgkin's lymphoma, Hodgkin's disease, melanoma, and cancers of the thyroid, liver, and kidney in women; and childhood cancers overall, especially childhood leukemia and brain cancer. The strength of evidence concluding that these and other cancers may be caused by chemical exposures ranges from limited to strong.[10] Recently, the President's Cancer Panel summarized its investigation into causal evidence linking environmental chemicals to various kinds of cancer, and concluded that, despite remaining uncertainties, we know enough to act.[11]

The scientific literature identifies more than 100 industrial chemicals—many of which are commonly found in the workplace and home—known to affect the human brain and nervous system, causing memory, cognitive, and functional symptoms.[12] An extensive 2008 review summarizes the evidence from laboratory animal and epidemiologic studies, revealing that lead, aluminum, other heavy metals, PCBs, particulate air pollution, solvents, and some pesticides can increase the risk of neurodegenerative disorders, including cognitive decline, dementia, and Parkinson's disease.[13]

Extensive evidence from occupational studies and general population epidemiological and medical case reports documents that hundreds of chemicals can cause asthma in individuals previously free of the disease or can place asthma patients at greater risk for subsequent attacks.[14,15,16] Mechanisms include irritation or sensitization of the respiratory tract, among others. The doubling of asthma rates over the last two decades has prompted researchers to examine the role that chemicals and other environmental risk factors may play in this trend, as genetics cannot explain such dramatic increases in prevalence over such a short time.

Failed Chemical Management System

While mounting evidence shows that chemical exposures can cause or contribute to negative health outcomes, the federal law created to protect the public from hazardous chemicals has not been updated since its passage in 1976. Independent reviews have found that the law governing industrial chemicals, the Toxic Substances Control Act (TSCA), does not:

- require adequate testing of existing and new chemicals, which means we are unaware of the full hazardous profile of most chemicals;[17]
- regulate known hazards because regulators do not have adequate authority to do so;[18]
- provide incentives for safer alternatives to come to market or to require their use; or
- allow for sufficient public access even to the limited chemical information provided by chemical manufacturers to the government.[19]

The American Medical Association, the American Nurses Association, and the American Public Health Association, among other organizations, have called on the U.S. Congress to fundamentally restructure TSCA such that it better protects public health and the environment.

Reducing the Cost of Doing Business for Health Care

As major consumers of chemicals and chemical products, many health care institutions spend significant resources identifying and eliminating the use of toxic chemicals commonly used in their facilities. In addition to costs related to preventive efforts, health care institutions must absorb increased business costs associated with chemical exposures. Group purchasing organizations also incur costs through the resource-intensive process of investigating the safety of products, researching alternatives, and responding to inquiries from its members about the toxicity of chemicals and requests for safer products. With effective chemical management laws, the health care sector would have to spend fewer dollars protecting their patients and employees from harmful chemical exposures.

Health Care Without Harm

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Citations available at http://www.noharm.org/us_canada/issues/chemicals/ (Key Resources)

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