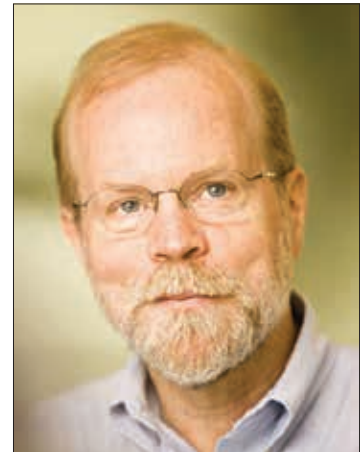


Don't assume the chemicals in household products you use every day are safe

AN INTERVIEW WITH RICHARD DENISON

Ever watch the dust fly when you flop down on a couch? Most of us have—and in the process, we have likely been exposed to toxic flame retardant chemicals that have been linked to several neurocognitive problems in children.

Every day, as we go about our lives, we are surrounded by tens of thousands of chemicals. They are everywhere: in our clothes, air fresheners, cleaning products, toys—even the food containers we eat from. Some 85,000 chemicals are available for use in the U.S.—and the government has required *only a few hundred* to be adequately tested to ensure they are safe. Some of these chemicals have been linked, with varying degrees of certainty, to some diseases that are on the rise: brain tumors and leukemia in children, asthma, infertility, autism and Parkinson's disease. Most studies have been conducted on laboratory animals. Yet, there is growing epidemiological evidence in people that supports the findings from the animal studies.



Richard Denison

The main law that is supposed to protect us from dangerous chemicals is broken. And EDF lead senior scientist Richard Denison has made it his life's work to fix it.

And when Richard speaks, people listen.

Last year when an obscure chemical used to wash coal spilled into the Elk River near Charleston, West Virginia's largest city, there were virtually no data on the impact it might

have on human health. While the government was quick to claim the water was safe to drink, Richard spotted a problem with the government’s risk calculations and used his highly influential blog to call attention to the problem. One week after the spill, the Centers for Disease Control reversed its recommendations and issued a warning for pregnant women, citing the lack of safety information. “We don’t know how many women and their babies were helped by Richard’s efforts,” says Sarah Vogel, who heads up EDF’s health team.

Richard came to EDF as a young molecular biochemist in 1987. His early work pressing for the safe disposal of hazardous wastes is one of the reasons that we don’t hear much anymore about new Superfund sites. But other problems remain. He has testified before Congress about a dozen times on the need for fundamental reform of U.S. policy towards toxic chemicals—most recently on March 18th when he spoke to a Senate committee in support of what could be a game-changing overhaul of the Toxic Substances Control Act (TSCA).

As we go to press with this Special Report, the bipartisan legislation is now in play on Capitol Hill, in part because of Richard’s persistence and passion for protecting the health of American families.

Can a company use whatever chemical it wants in a consumer product—even if it might cause cancer?

Yes. It’s the Wild West out there. Most people think the government would never allow chemicals on the market if they had not been shown to be safe. But most chemicals



Virtually none of the chemicals in house products have ever been tested for safety.



Pregnant women and young children are especially vulnerable.

used in household products, paint, carpeting and furniture are not required to be adequately tested for safety—or subjected to a review about the risks they may pose. That rightly shocks most people.

Why are we not better protected from hazardous chemicals?

When the TSCA was passed almost 40 years ago, there were about 60,000 chemicals on the market. All of those chemicals were grandfathered in—in other words, they were allowed to stay on the market without any requirement that they be tested or shown to be safe. Since then, thousands of additional chemicals have entered the market with very little scrutiny.

Why does the current law just assume those chemicals are safe?

When TSCA was put in place in 1976, there was an assumption that chemicals in household products were safe because, unlike a drug, they were not designed to be active in our bodies. Since then, the science has shown that assumption was faulty and, in fact, even chemicals not designed to be biologically active can have significant effects on our health.

Even so, under the law, the government is very restricted in its ability to require companies to develop the information it needs to determine whether a chemical is hazardous to human health. And once the chemical is on the market, with rare exceptions, anyone can come along and use it for any purpose, without even telling

the government. People are surprised to hear this. We certainly don't let a new drug on the market without a lot of proof that it is safe as well as efficacious. The biggest worry I have is for women of childbearing age and young children because most of the evidence points to them as being at the highest risk.

Can the government at least restrict the use of chemicals known to be dangerous, such as carcinogens?

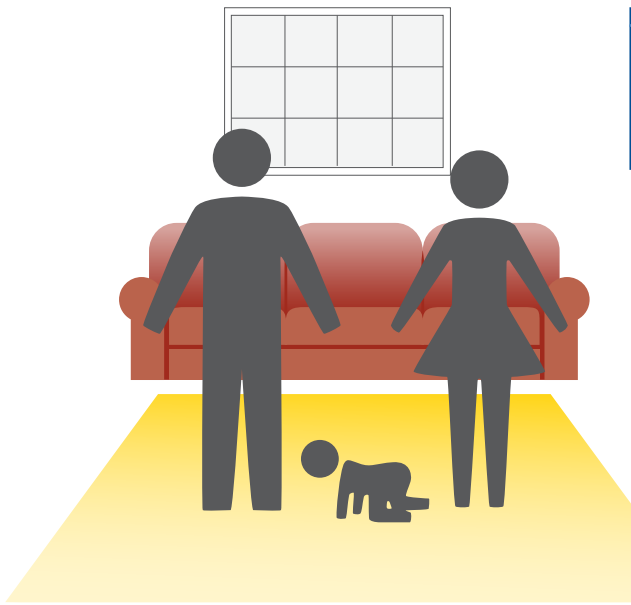
There are some chemicals that we have known for a while are dangerous. Yet they show up in thousands of products with very little control over how people might be exposed to them. The government even failed to restrict the use of asbestos. It tried. But a court overturned the ban, saying the government had not met its burden of proof under TSCA. The only reason that the use of asbestos has been mostly eliminated is because of our liability system. Asbestos is unique in that it is the direct cause of a rare cancer called mesothelioma—and the courts have repeatedly ruled in favor of people who develop the disease, holding the makers and users of asbestos liable.

But the vast majority of chemicals do not have “signature” diseases like mesothelioma—and so it's harder to prove beyond a reasonable doubt that a certain chemical caused a disease in a specific individual. We need a system that addresses that uncertainty and is able to act by anticipating whether certain chemicals are likely to be contributing to diseases in people—and then take appropriate measures to restrict exposure to them.



Huge personal injury verdicts—not government action—are the reason asbestos has been mostly eliminated from the market.

Toxic chemicals are in your home



PFCs
(perfluorinated compounds)
Used in:

- clothing
- cookware
- food containers
- carpets



BPA
(bisphenol A)
Used in:

- food can linings
- baby bottles
- receipt paper
- CDs and DVDs

Formaldehyde

Used in:

- carpeting
- soaps and detergents
- cabinetry
- glues and adhesives



Phthalates

Used in:

- air fresheners
- paper
- vinyl tile
- wood varnishes and lacquers



Toluene

Used in:

- paints
- flooring adhesives
- plumbing adhesives
- adhesive removers

PBDEs

(polybrominated diphenyl ethers)

Used in:

- furniture
- electrical equipment
- TVs and computers

Toxic chemicals are in your body

BPA is found in **9 out of 10** Americans



PFCs, PBDEs and **phthalates** are in **99%** of pregnant women

232 toxic chemicals were found in umbilical cord blood from U.S. newborns

They're putting your health at risk

Fertility problems are linked to **PFCs, PBDEs** and **phthalates**



Asthma is linked to **toluene** and **formaldehyde**



Parkinson's disease is linked to **trichloroethylene** and other chemicals



And many more may be just as dangerous

Learn more and take action at edf.org/ChemReform

How do you know if you're being exposed to a dangerous chemical?

That's the problem. You often don't. Back in the 1970s, evidence came to light that some of the flame retardants used in children's pajamas could cause mutations in DNA, which is a likely way to get cancer, and could interfere with early biological development in fetuses and young children. EDF played a role in getting those chemicals banned in children's pajamas.

But one of those chemicals is still in use today as a flame retardant in foam used in our couches, pillows and a variety of children's products, including baby car seats and changing pads. We know now that the chemical doesn't stay in the foam. Every time you sit on your couch, the foam breaks down a little bit—and over time, that creates very small particles that can be pushed out through the upholstery into the air.

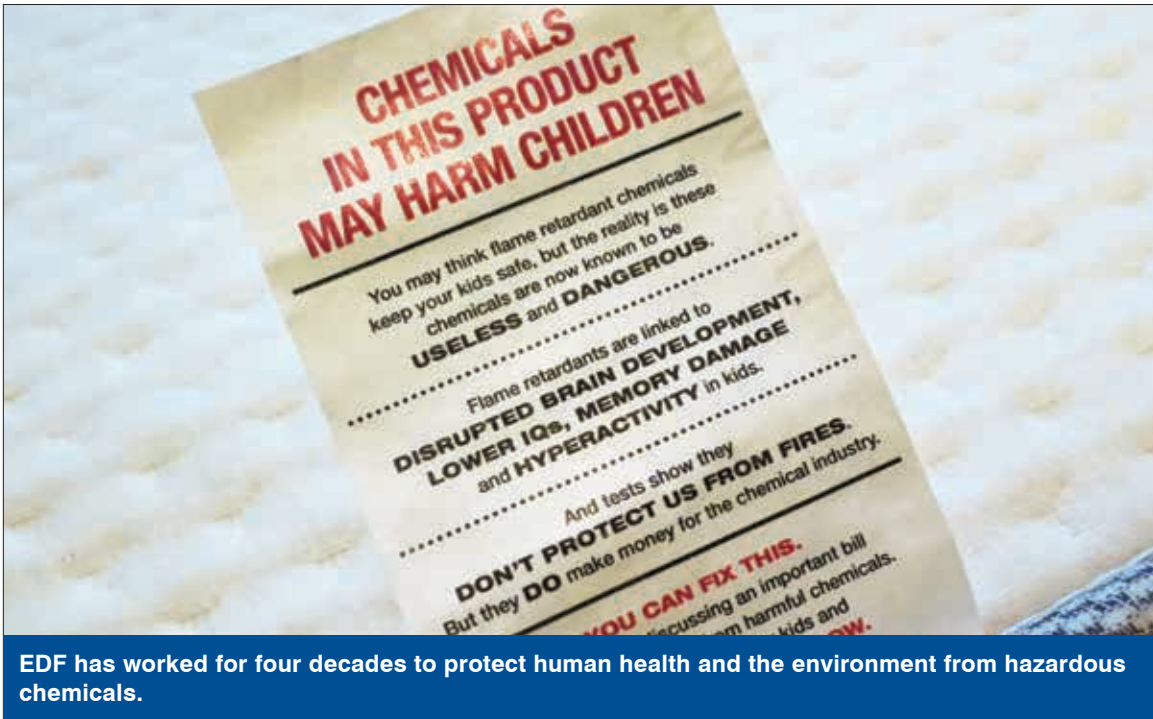
That dust carries the flame retardant and can accumulate in our houses, where it can be inhaled or ingested. Young children are particularly at risk because they spend a lot of time on the floor, crawling around and picking up whatever they come into contact with—and then licking or sucking their fingers.

Does that mean that every American has been exposed to fire retardant chemicals?

For more than a decade, the government has done biomonitoring—that is, taking blood and urine from a representative sample of the American population—to test for specific



Congress is finally moving to reform the 40-year-old chemical law signed by Gerald Ford.



chemicals, including flame retardants. What they've found is that the vast majority of Americans carries measurable levels of these chemicals in their bodies.

That's shocking.

Yes, though I don't want to overstate the science here. There are uncertainties. Much of the evidence we have of the harm these chemicals can cause was done by testing laboratory animals. But there is a growing body of epidemiological evidence in people that supports the animal studies. Even though our health is getting better in general in the U.S., there are a number of diseases rising in the human population: certain types of cancer—leukemia and brain tumors in young children—as well as asthma, infertility and other reproductive problems, autism and even Parkinson's disease. All of these are linked, with varying degrees of certainty, to exposures to certain chemicals.

For example, if people are exposed to certain pesticides or solvents such as trichloroethylene, they are more likely later in life to suffer from Parkinson's disease. That is scary because many people have been exposed to these chemicals.

What is EDF doing to change that?

Reducing exposure to dangerous chemicals has been a hallmark of our work all the way back to the very beginning. Our first major victory in the early 1970s was to win a ban on aerial spraying of DDT for mosquito control. Evidence was beginning to emerge at



We cannot wait to protect another generation from hazardous chemicals.

that point that DDT was in the breast milk of pregnant women and women nursing infants. That was a huge wake-up call.

For the last 20 years or so, we have focused on trying to reform TSCA. It's taken us a long time to raise awareness of the problem—and finally lawmakers on the Hill are moving progressive legislation forward. We also do a lot of work to enhance the science behind the way we test chemicals and assess their safety. We look at the multiple ways people can be exposed to a given chemical—through using the product, yes, but that chemical might also be present in the air or water. The effect of a chemical on a person varies because some may be more susceptible and some may receive higher levels of exposure.

You have called TSCA an epic failure. Why?

The first problem is that the law is very old. It was signed into law by Gerald Ford nearly 40 years ago, and it has simply not kept up with new science. It also predates the more recent explosion in the use of chemicals. We use far higher numbers and volumes of chemicals today than in 1976. They have replaced more natural materials like wood. If you just look around your room, virtually everything is made of synthetic chemicals.

The other problem is TSCA simply lacks teeth. It did not give EPA (Environmental Protection Agency) the authority it needs to do the job of assessing the safety of the tens of thousands of chemicals that are already on the market—or to adequately screen new chemicals before they get on the market. EPA cannot require companies to test their chemicals without first showing that the chemicals may pose a potential risk. That

sets up a catch-22 because, without the testing, EPA doesn't have the information it needs to identify the risk. And the government's hands are tied when it tries to regulate chemicals. Since a court overturned its ban on asbestos, EPA has not tried to restrict any other chemical under TSCA. And that was almost 25 years ago.

What would the new chemical safety legislation do?

The Frank R. Lautenberg Chemical Safety for the 21st Century Act would, for the first time, require EPA to review chemicals already on the market and beef up reviews of new chemicals. It would base those reviews on a safety standard that is purely health-based—and would explicitly require protections for people who are the most vulnerable. It would also give EPA new authority to require testing of chemicals, collect information and inform the public.

It's not perfect, but after all the debate and inaction, it's the best chance we've had in a generation to overhaul TSCA. The bill was introduced by a bipartisan group of 17 senators, and now has 20 cosponsors: 10 Democrats and 10 Republicans.

What are the chances of it passing?

This is a pivotal year. There's strong bipartisan support and a lot of momentum. We have to get it through the Senate and then have similar legislation move through the House. We hope that can happen before the craziness of the 2016 Presidential campaign hits full speed.



EDF is working with major retailers to replace hazardous chemicals in their products.

Will we be safer if the new law passes?

We have a pretty deep hole to dig ourselves out of. There are several tens of thousands of chemicals that will have to be reviewed. And EPA's track record and the resources it needs to do that are limited, although the legislation will require companies to pay user fees to increase the budget for this work.

We are looking really at a generation-long process of getting ourselves to a point where we can have some assurance that the chemicals we are using every day are safe. It's sobering to think it's going to take quite a few years, but we simply have to get started changing the momentum toward a system that requires evidence of safety in order for a chemical to be on the market.

What's the situation in other countries?

The European Union (EU) is about a decade ahead of the U.S. on chemical reform. In 2006, the EU adopted a sweeping new regulation that applies to all EU nations. It requires an assurance of safety as a condition for being on the market. That law is still being phased in over an 11-year period, so the final deadlines are coming up shortly.

The law applies to products exported to Europe, so many U.S. companies are changing their own practices to comply. Countries like Korea, Taiwan, Japan, Turkey and China are also picking up elements of the EU law in their own regulations. So the U.S. is kind of late to this party. If we don't take this opportunity to reform TSCA, American companies may not be able to compete as well globally.



You should not need a Ph.D. in chemistry to make safe purchases.

Can U.S. companies play a role by making safer products?

Many companies have seen the writing on the wall. Some are already adhering to stricter regulations in Europe to avoid certain chemicals. They're under pressure to disclose more information about the chemicals in their products. EDF is working with companies like Walmart and Target on initiatives to press their suppliers to replace hazardous chemicals with safer ones.

I fully believe the market can help propel this forward once we have legislation that puts the basic rules of the road in place. But we need that strong federal program to shift the paradigm from our current system that requires proof of harm to act to a new one that requires proof of safety in order for companies to have market access.

What can we as individuals do to protect ourselves?

There are certain types of chemicals that you can avoid to some extent if you look hard. You can now find, for the first time, furniture that doesn't contain chemical flame retardants. But it's simply not fair—and it's not feasible—to have every consumer in the country doing all the work that's necessary to sort this out. We need policies that provide consumers with better information—and confidence that the products they buy are safe. And we are far from that right now.

Is there a place people can go to get the information they need?

Unfortunately, this is limited. Some companies are moving towards disclosing all the ingredients in their products on their websites. But there's no requirement under the law for disclosing all the ingredients in household products that you have under your sink.

EPA has just unveiled a product labeling program called Safer Choice, which will start showing up in stores later this spring. Products that carry the label have had all of their ingredients assessed by EPA scientists using human health and environmental safety standards.

What about personal care products?

A different agency (Food and Drug Administration) and a different set of laws govern products like toothpaste and creams that you put on or in your body. There's somewhat more disclosure for those products.

Does that mean that they are safe?

Not necessarily. The chemicals are listed on the label—but it is often up to the consumer to figure out whether a given chemical is toxic. While there are some resources on the web to help do that, it's not easy. Only a very small percentage of the population is likely to have the ability and wherewithal to actually track down the information and make sense of it.

This has been your life's work. What led you to it?

I did a post-doctoral fellowship working on the molecular biology of cancer and was on track for a career in biomedical sciences. But I began to get restless about what I saw as a path by which I would know more and more about less and less. I didn't want to become so specialized that I would be diving into only a small aspect of the bigger picture. I decided I wanted to use my science training to have a broader impact on public health.

When I moved to EDF in 1987, I began working on hazardous and municipal waste management—always focused on toxic chemicals. We worked with McDonald's to move away from using polystyrene—partly because of the toxic nature of the chemicals used in producing that material. I then spent a lot of the 1990s developing tools for companies to assess the chemicals in their products, only to find that the data they needed to make better choices were almost always lacking. That's when I started realizing that our weak laws were to blame for the lack of information in the market about most chemicals.

What do you do when you're not working on TSCA reform?

I'm on a National Academy of Sciences committee on emerging science for environment health decision-making. We examine exciting emerging issues such as epigenetics (which provides insights into how genes are influenced by the environment) and new technologies to monitor personal exposures to chemicals as people go about their daily lives. I also love to travel. My wife (Paula Bryan, a textile artist and international development consultant) and I have been to Turkey seven or eight times!

For more information, please contact Kathryn Chiasson at 800-684-3322 or email members@edf.org.

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