

Sleep Safe
in a
Toxic World

*Your Guide to a
Safe Night's Sleep*

Walter Bader

FREEDOM PRESS

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Dedicated to everyone striving to reduce their daily exposures to chemicals in our increasingly toxic world.

Acknowledgements

WHERE DOES ONE BEGIN to acknowledge all the people who have influenced our education and perspectives? If they were alive today, I would personally thank Rachel Carson, whose book, *Silent Spring*, first alerted me to the seriousness of air and water pollution, and people like Dr. Theron Randolph, who tried valiantly to make the public aware of the health risks associated with chemical exposures in the early 1950s. Both wrote books in 1962 that changed my life.

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Finally, I would like to recognize the value of the thousands of consumers whose questions over the years directed me to find answers to the issues they were trying so hard to define in an effort to protect their health and the health of their families. Their questions taught me a great deal.

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Foreword

ONE OF THE MOST FREQUENT QUESTIONS I am asked when people consult with me about how to make their homes healthier places to live in is about bedrooms and, in particular, about beds. What is a healthy bed? Are healthy beds really that important? What's the healthiest bed? Are they worth the investment? Where do you buy one? Is organic really better? What about memory-foam beds—are they any good? That's why I am so delighted Walt Bader wrote this book. Now I can refer people to this goldmine of information that answers all these questions.

I first discovered Walt and his company, Lifekind, several years ago on the Internet while doing research for my book, *Homes That Heal*. I was looking for the best organic bed and bedding and was really impressed with the full disclosure Lifekind gave on all their products. I remember thinking, "Finally! Someone is doing it right!" With so much "green-washing" going on today, where businesses try to make themselves look more environmentally friendly than they really are and deceive consumers with misleading claims about the all-natural wholesomeness of their products, it's increasingly difficult to find companies with vision and integrity providing genuine organic products and great customer

service. Walt now brings the same vision and integrity that goes into Lifekind to this book.

The good news is that people are beginning to realize that the health of their home impacts the health of their family. Often the difference between a healthy and a toxic home is simply decided by the consumer choices we make. The bad news is that there are so many poor quality and toxic consumer products on the market, and the everyday person has no way of knowing what they are exposing themselves to. Labels and product ingredient lists rarely show all the dangerous chemicals that can go into making a product.

Thankfully, Walt decided to share his extensive research on beds and compile it into a book so it could be made available to the general public. Contained within these pages you will find a multitude of facts, scientifically valid studies and never-before-available laboratory test results revealing the chemical composition of several popular types of mattresses (such as “memory foam”). This book is essentially a full disclosure on the hidden truth about beds.

What is so important about bedrooms and beds? As Walt points out, on average we spend about a third of our life in bed. Children, the elderly and sick spend even more time there. According to the National Sleep Foundation, 50 to 70 million Americans (including children) suffer from intermittent sleep disorders, 40 million of which have chronic sleep problems. Sleep is not merely a “time out” from our busy routines; it is essential for good health, mental and emotional functioning, and safety. Sleep is when the body detoxes and heals itself. Anything that impairs our ability to sleep properly or our quality of sleep has significant impacts on the other two-thirds of our life. What most people don’t realize is that the actual bed you sleep in can be the cause of many of these problems.

Toxic Bedrooms points out that while your mattress label may tell you what your mattress is made *of*, it does not tell you what those materials are made *from*. Why would you want to know this? Because many commonly used mattress materials are a chemical nightmare. Polyurethane foam, for example, is made from a base of petrochemicals combined with a staggering array of additional chemical ingredients used as stabilizers, catalysts, surfactants, fire retardants, colorants, and blowing agents. Each of these

chemicals is associated with a host of environmental problems as well as numerous human health hazards, such as chronic bronchitis, reduced lung function, breathlessness, nausea, vomiting and various allergic reactions. Some are even listed as potential carcinogens and reproductive toxins.

People also report experiencing restless sleep, frequent waking, insomnia, and waking feeling “foggy” in the morning after sleeping on certain mattresses. Though these latter effects may not be considered life-threatening, they can certainly ruin a person’s productivity and quality of life. So if you are sleeping on a mattress or pillow containing materials such as polyurethane foam, you may be breathing in and absorbing through your skin these various chemicals all night, every night, as they offgas from the product. And what’s more, offgassing may continue, to some degree, indefinitely for the product’s entire lifetime. Why is the consumer not warned about any of this? I, for one, would want to know!

If you care about your health, it’s important to learn about what you are sleeping on. Walt’s lucid and comprehensive explanations will help you understand just how many layers of potentially hazardous chemicals you and your family are being exposed to each night. And it’s not just your mattress. Add to the equation foundations which often contain the same chemicals as the mattress, sheets and blankets made of synthetic fibers or pesticide-laden natural fibers treated with additional chemicals for our “no-need-to-iron” convenience, and top it all off with fragranced and chemical laundry products. One can only conclude that many manufacturers have no real concern about what is in their products.

Toxic emissions from bedroom chemicals can be one of our most significant sources of daily exposure to pollution and the cause of countless maladies. Yet, when was the last time your doctor or health care professional asked you what you sleep on at night? I believe beds are one of the single-most overlooked culprits in people’s (and especially children’s) health problems. What if your child’s frequent waking at night, inability to concentrate at school, or temper tantrums are because he is sleeping on a toxic bed? What if you are needlessly medicating your child when what she really needs is a few good nights’ sleep on a healthy bed?

Some people may argue that they don’t experience any noticeable negative reactions to their beds. Even so, you are still being exposed, and these

low-level exposures over a long period of time can wreak havoc with your health. So do make sure you give your doctor or health care professional a copy of this book next time you see them, and ask them to review this valuable information.

Mixed throughout these pages you will also find plenty of great advice, such as how to shop for an organic mattress. No one had ever explained this to me before, and it makes so much sense. By the end of this book you will have learned everything you need to know about beds to become an informed consumer. You will also know where to begin to make your bedroom a much healthier environment to sleep in. There is everything to gain and nothing to lose as you discover for yourself the many benefits of a truly great night's sleep.

Finally, on a personal note, I began switching my family over to organic beds several years ago. I was not able to do it all at once, so I did it gradually. First I changed my family's pillows to organic wool and organic cotton. Then I changed everyone's bedding over to certified organic cotton: pillow-cases, sheets, duvet covers. All of this felt wonderful to do and gave me more peace of mind at night. However, the most significant difference came when we got rid of our expensive, popular brand-name mattress and replaced it with a true organic one. That first night's sleep was blissful and I have not looked back since.

May you and your loved ones enjoy great health, wonderful sleep, and all the benefits this book offers.

—Athena Thompson
Building Biologist
Author of *Homes That Heal*

Preface

IF YOU WANT TO SEE ME SNEEZE, just give me a peppermint. As a young boy, some of my food allergies seemed funny. But it became less of a laughing matter as I got older and my allergies continued to worsen. By the time I was seven or eight, I could not walk down the laundry products aisle in the supermarket without my eyes tearing and burning. I was never too excited when my parents took me into the large toy store in town because it smelled horrible and made me feel dizzy.

Not everyone took my complaints seriously. After all, the first book about individuals with reactions to the chemicals in their environment wasn't even written until I was in college (Dr. Theron Randolph, *Human Ecology and Susceptibility to the Chemical Environment*, 1962). Like many of my generation, I was raised at a time when TV commercials promoted "Better Living Through Chemistry." DDT was sprayed throughout my local neighborhood to control mosquito populations, and great new products were being introduced made out of a wonder chemical product called "plastic." Basically, I survived my youth by submitting to countless scratch tests and injections to desensitize my allergies, and avoiding all the products and places that I realized were not

for me. Still, most of the time my best friend was the biggest box of Kleenex I could find.

Today my condition would be diagnosed as Multiple Chemical Sensitivity (MCS). While for years people looked askance at this diagnosis, MCS is now recognized by reputable organizations such as The American Medical Association, The American Academy of Environmental Medicine, The National Academy of Sciences/National Research Council, The American Public Health Association, The American College of Physicians, and many more, including 22 U.S. federal entities; local, state and federal courts; and numerous international groups.

I realize today there is no way I can avoid all of the chemicals that surround me on a daily basis. But I try. My home is as chemical-free as possible, I drive a car with a good air filter, my work environment has non-VOC paint on the walls, and I sit at a non-outgassing metal desk. I even cultivate an organic garden and an organic orchard to help me avoid every chemical I possibly can.

In 1994, I decided that people might benefit from what I had learned about chemicals and the products I had incorporated into my daily lifestyle. In my desire to find a way to make this information and the products I was using available to people who were suffering from chemical sensitivities, as well as those who simply wanted to be proactive and avoid exposure to toxins in their life before it turned into a health concern, I started a national catalog company.

The company, Lifekind® Products, Inc., grew faster than I ever imagined, and became a portal for those who wish to research chemicals, review our Hazardous Ingredients Glossary or select a book from a list of suggested reading. Lifekind's mission is still the same: to promote products that lower your daily exposure to dangerous chemical ingredients, and to help you identify product ingredients that are potential health risks to you, your family and our planet.

I have personally believed for years that the information in this book should be made available to the public who, for the most part, are still under the illusion that government agencies are protecting their health, and that product labels give them accurate insights into a product's health risks.

This book is the culmination of my experiences, conversations with thousands of consumers, and primary research. The information has changed my life, and I promise it will change yours as well. Avoiding environmental contaminants in your mattress and bedroom is not that difficult. Incorporate these suggestions into your lifestyle, and the peace of mind alone will help you to sleep better.

Introduction

ONE OF THE MOST SIGNIFICANT CHANGES we can make to reduce our exposure to toxins and improve our overall health is to make modifications in the one location where we spend roughly one-third of our lives: our bedroom. A healthy sleeping environment will give your body a chance to recover from the toxins and stress that it is exposed to throughout the day. Given the fact that we have almost exclusive control over the furnishings, equipment, and attire we place in and near our bedrooms, it is up to us to safeguard our health by making this room as healthy and environmentally safe as possible. This book will give you the information you need to improve the health and safety of your bedroom.

Our bodies are under constant attack throughout the day from germs, toxins, pollutants, and other harmful substances. While we may try our best to minimize exposure to these pollutants, it is a daunting challenge. And the question remains...how great an assault can our bodies take from the vile concoctions mixed in with our food, cosmetics, work environment, and household products, before they collapse? This is a question that no one can answer precisely, but it stands to reason that the human immune system has its limits.

While it may come as no surprise that pollution is ubiquitous with far-reaching health consequences, many Americans would be shocked to realize that toxic emissions from bedroom chemicals may be one of our most significant sources of daily exposure to pollution. Bedroom pollutants have multiple origins, including chemicals, pest infestation, and electromagnetic fields (EMFs). Whether your bedroom is a simply furnished room or an elaborate designer masterpiece, it can be laden with chemicals that emanate from paints, varnishes, carpeting, furniture, dry-cleaned clothing, cleaners (including furniture polishes), books, magazines, window treatments, televisions and stereo equipment, and bathroom chemicals (especially plug-in air fresheners). And perhaps one of the greatest offenders is the one item in our bedroom with which we are intimately familiar: our mattress.

Each night, we approach our mattress with minimal clothing and lay down for a seemingly restful and restorative night's sleep. But in reality, while resting on a conventional mattress we are breathing in and absorbing through our skin a slew of chemicals from the synthetic fibers in paddings, pillows, fillings, bed linens, and chemical treatments—chemicals that can disrupt our sleep patterns and negatively affect our health.

Our mattresses emit gases from the toxic soup of components and applications used to create them. From the polyurethane foam used in the padding to fire retardants and antimicrobial additives, conventional mattresses can continue to release these dangerous gases long after their production. Even after the mattress has completed outgassing (if this ever occurs), its synthetic and chemically based construction provides a hospitable environment for dust and dust mites, whose excrement is the number-one trigger for asthmatic attacks.

What's worse, chemical exposure from conventional mattresses includes chemical additives you will not find disclosed on law labels (those white labels that say, "Do Not Remove"). These include polyester-cotton blends used for "ticking," vinyl for water resistance (used on both hospital and children's bedding), Dacron polyester for batting, and polyurethane foam (made from polyols and TDI, or toluene diisocyanate).

The next time you shop for a mattress, check with the salesperson for a disclosure sheet that itemizes the ingredients and lists the potential health hazards of the product. No such information is available, and the absence of this information at the time of purchase prevents you, as a consumer, from making an informed decision about the product you are contemplating purchasing. If an information sheet were available, it would inform you that TDI, a likely component of your new mattress, is recognized as a human carcinogen, and that exposure to this chemical can cause a number of health conditions, including respiratory problems such as bronchitis and asthma. Furthermore, liver damage, blood disorders, and breathing problems have been linked with vinyl chloride monomers, another known human carcinogen. Boric acid is a multipurpose roach powder that is commonly used as a fire retardant on mattresses. Yet chronic exposure to this chemical has been associated with reproductive, liver, and kidney problems. Unfortunately, it is highly unlikely that you would ever be given such information from a mattress manufacturer or salesperson.

In addition to the chemicals emitting from our mattresses, we increase our chemical exposure further by wrapping ourselves in sheets and blankets made from synthetic fibers or pesticide-laden natural fibers that are soaked in chemicals. While wrinkle-free bedding may sound good on a package label, the price we pay is exposure to unnecessary and increasing levels of dangerous chemicals, such as the widely recognized carcinogen formaldehyde.

Since our skin is our largest organ and the most porous entry point into our bodies, it is important to remember that what goes onto the skin will also go *through* the skin. It is often said that what touches our skin ends up in our cells—a frightening adage to consider the next time you are pondering a purchase of bedding, clothing, or cosmetics. Without realizing it, we may make hundreds of decisions each day that place convenience over health.

For instance, poly-fill pillows are economical, but are they worth the price the body must pay? They may be inexpensive and “hypoallergenic,” but these pillows are made of synthetic chemical fibers, foam, or feathers that have been disinfected with undisclosed chemicals. These compo-

nents may be a source of chemical contaminants, as well as allergens, when inhaled and absorbed into the body through the skin and lungs.

Hypoallergenic

Hypoallergenic is a word that was created by a small cosmetic company in the early 1960s, and was quickly adopted by the advertising industry to describe products that produce fewer allergic reactions.

The Greek prefix *hypo* literally means “less” or “below,” so when a product is designated as hypoallergenic it means that it will conceivably trigger fewer allergic reactions in people who suffer from allergies.

The term does not relate to chemical exposures. The expression has no medical definition, and there is no certification process or organization that reviews whether a product using the word “hypoallergenic” can prove any lessening of allergic reactions.

The cumulative effects of these chemical exposures may express themselves in a number of ways, from poor quality of sleep to allergic reactions, to even more critical health concerns, such as respiratory distress and a host of other serious and life-threatening illnesses. Doctors and health experts agree that sleep is critical to improving and even maintaining our health. But many of today’s mattresses, while comfortable, do little to promote our health. In fact, I believe most conventional mattresses are actually harmful to our health.

And let’s not minimize the effect these chemicals can have on our children. Many children are exposed to these chemicals from the moment of conception. Throughout their development, growing babies are exposed to these chemicals in the womb, through their mother’s breast milk, and then through their own chemically laden crib mattresses. Numerous studies have identified the potential reproductive and developmental health risks associated with chemical exposure. The cumulative impact of the myriad chemicals we are exposed to on a long-term basis is an issue that may continue to plague us through the years, and has the potential to significantly decrease our health over time.

Whether your interest is environmental or health-oriented, it is worthwhile to bear in mind that the effects of just one chemical or pollu-

tant are unlikely to cause major health problems over time. Rather, it is the sum total that ultimately affects and influences long-term health. Simple changes that help you avoid chemical exposure can do wonders for building a healthier system, both human and environmental.

PART 1

The Toxic Soup: Chemicals and Your Health

YOU MAY THINK you are leading a relatively healthy lifestyle. You eat right, you exercise, you steer clear of cigarettes...so is it really possible that your body is laden with chemicals? Unfortunately, the answer is a resounding YES! Toxic chemicals are now endemic to our environment. They enter our bodies through the items we touch, the foods we consume, and in large part, from the air we breathe.

There are currently over 100,000 chemicals in use in today's modern society, of which only a small percentage has ever been tested for human health effects. Every day you are exposed to such a wide array of chemicals that it would be impossible to keep track of them all. Yet many of these toxins can have a serious impact on health and quality of life.

Most people are surprised to learn that their mattress may be one of their most significant daily sources of chemical exposure. Not only does a conventional mattress contain an amalgamation of undisclosed chemicals, but it is also the one item in our lives with which we have the most daily contact. It's time you learned what you are sleeping on.

C h a p t e r O n e

The Body Burden and the Burden of Proof

“In Sleep we are all equal.” —Spanish Proverb

WHAT’S MORE DISTURBING: the fact that we as a society are regularly exposed to a slew of toxic chemicals and pollutants, or that we have grown accustomed to this macabre fact? All of us carry in our bodies our own personal cocktail of toxic chemicals, as evidenced by samples of human blood, breath, hair, tissue and body fluids. While we may like to think that someone is keeping an eye on the levels and types of chemicals entering our bodies, the sad truth is that most of our exposure to these chemicals is not from sources traditionally regulated by government agencies, such as waste sites and factories. Rather, our primary sources of chemical exposure are closer to home: from the activities, products, and materials that we allow to enter our indoor environment.

Many of us are exposed on a daily basis to a veritable laundry list of chemicals, from toxic mercury to pesticides to potentially cancer-causing by-products of plastic. These chemicals are found in measurable amounts in our blood, hair and urine. Toxic chemicals are everywhere, present throughout our environment.

The production of synthetic organic chemicals has exploded since World War II. There are now an estimated 800,000 different synthetic chemicals in use, according to a recent press release from Senator Frank Lautenberg, chair of the Subcommittee on Superfund, Toxics and Environmental Health. To date, roughly 200 of these chemicals have been tested, and the health and environmental effects of many of these substances remain largely untested and unknown.

We all want our homes to be clean, safe places to live—a refuge from the chaos and cares of the outside world—but toxic invaders may lurk inside your home, putting you and your family at risk. Due to increased public awareness and concern about such toxic chemicals, many government and private agencies have started programs to monitor to what degree chemicals are being stored in our bodies, and what potential harm they might be doing to our health.

In the 1980s and 1990s, the U.S. Environmental Protection Agency (EPA) and other researchers conducted what was at that time a landmark study that measured personal exposure to pollutants. The study was called TEAM (Total Exposure Assessment Methodology) and its purpose was to measure personal exposure to pollutants. TEAM monitored more than 3,000 people in 18 different U.S. cities, and one Canadian province, for exposure to volatile organic compounds (VOCs), pesticides, carbon monoxide, particles, phthalates, polycyclic aromatic compounds, and other pollutants. Participants carried around personal exposure monitors that indicated what, how much, and where pollutants were affecting them. In addition, the researchers analyzed participants' breath to measure levels of both volatile organic compounds and carbon monoxide.

These studies produced an unexpected finding: Most of our exposure to pollutants occurs indoors, from products we choose to use. The consensus of each of these groups was that the risk from indoor air pollution and consumer products was far greater than most other risk factors surveyed, including hazardous-waste sites and industrial sources of outdoor air pollution.

In 2001, Bill Moyers aired a show entitled "Trade Secrets" on PBS. The show focused on the growing awareness and concern about chemicals used by industry to grow crops and make consumer products, and discussed to what extent our bodies are absorbing these chemicals. The show's title relates

to the fact that the health effects of thousands of chemicals are never disclosed to consumers or governmental agencies such as the EPA because of businesses' claims that it is confidential business information or "trade secrets."

For the show, Bill Moyers agreed to be a participant at the Mount Sinai School of Medicine in New York as they studied the question of pollutant loads in the human body. Before participating, Moyers asked Dr. Michael McCally, vice-chairman of Preventive Medicine at Mount Sinai, whether he really thought they would find chemicals in his body. Dr. McCally's response was, "Oh yes ... no question. No question." The study analyzed Mr. Moyers's blood and urine. (A complete list of the chemicals found in his body can be viewed at http://www.pbs.org/tradesecrets/problem/popup_bb_02.html.)

The report indicated Moyers's blood and urine contained 48 compounds that can cause cancer in animals and are suspected or known to cause cancer in humans; 52 chemicals that have been linked to reproductive and child developmental damage; 17 chemicals that have been associated with heart damage; 21 chemicals that are known to interact with the endocrine system and lead to hormone disruption, which in turn may cause a host of diseases, including diabetes; 23 chemicals that can be responsible for damage to the gastrointestinal tract, stomach, liver and gallbladder; 17 chemicals that are potentially toxic to the immune system; 16 chemicals that could be toxic to urinary systems, including the kidneys (which in turn play a critical role in regulating blood pressure); 25 chemicals that can have detrimental effects on the nervous system, causing symptoms such as muscle weakness, tremors, dizziness, confusion, memory loss and cognitive deficiencies; 20 chemicals that may affect reproductive fertility and pregnancies; 21 chemicals that can affect skin and sense organs, causing symptoms such as rash, itching, poor vision and hearing, and can even impact a person's sense of smell and taste.

Needless to say, Mr. Moyers was shocked by these findings. (Wouldn't you be?) If you're like me, you are probably left wondering if we are all carrying similar levels of chemical contamination, or "body burden." More importantly, in what ways are these chemicals impacting our health?

Since 2001, the Centers for Disease Control's (CDC) Environmental Health Laboratory, part of the National Center for Environmental Health,

has published a bi-yearly report on chemical exposure in the United States, aptly named the National Exposure Report (NER). Studies done by the National Health and Nutrition Examination Survey (NHANES) that took place in 2003 and 2004 were used for the most recent report. The survey consisted of 2,400 volunteer test subjects of varying age, race and social roles. Using biomonitoring techniques, the NHANES tested for 212 chemicals in the blood and urine of volunteers. 75 of those chemicals were added for testing in the most recent edition of the report. The chemicals discussed in the NER include environmental phenols, polybrominated diphenyl ethers, volatile organic compounds, and perfluorinated chemicals, among others, which will be discussed in more detail later in this book. A full list of the chemicals that were included in the biomonitoring program can be downloaded at http://www.cdc.gov/exposurereport/pdf/NER_Chemical_List.pdf.

Notable findings in the report include the presence of polybrominated diphenyl ethers (PBDEs) in almost every single test subject. PBDEs were, until recently, commonly used as flame retardants in mattresses, bedding and children's pajamas. In animal studies, PBDE's have been shown to interfere with neurological development and thyroid function, along with being linked to a host of other health issues. They were banned in California in 2003 due to the fact that they are known to accumulate in the environment and human fatty tissue, although the ban didn't take effect until 2008. Several other states have banned PBDE's, including Maine, Hawaii, New York and Washington D.C. Two common fire retardant chemicals being used as replacements for PBDE's are tetrabromobisphenol-A (TBBPA) and hexabromocyclododecane (HBCD), both of which come with a host of suspicions about their environmental and health safety, and neither of which are included for analysis in the NHANES or NER.

The National Exposure Report has helped scientists, physicians, relevant government agencies, and private citizens better understand and diagnose health issues caused by exposure to chemicals. It is rather overwhelming to know, however, that over 80,000 chemicals are commonly used in American industry today, and have the potential to enter and be stored in our bodies, and I have little doubt that they are not beneficial to our health. This means that, even with the most recent 75 chemical additions, less than 3/10 of 1 percent of chemicals in use today have been tracked by the CDC using these

biomonitoring techniques to see if they are being absorbed from the surrounding environment and consequentially stored in our bodies. Attempting to detect and study the effects of every chemical in use today would be impractical at best. In addition, new chemicals are being created and used at an increasingly rapid rate, and many of the new chemicals used in modern industry go untested for human health and environmental impacts.

Several additional studies have been conducted to evaluate the chemical load present in each of us. Recently, in 2006, the Washington Toxics Coalition, together with the Toxic-Free Legacy Coalition, tested the blood, hair and urine of 10 volunteers for 6 different groups of chemicals commonly found in consumer products. Specifically, they tested for flame retardants found in mattresses and upholstered furniture, pesticides, phthalates found in toys and personal-care products, lead mercury, arsenic, and chemicals related to Teflon frequently used in food packaging and stain-protection treatments.

Occupations and demographics of the 10 volunteers varied greatly, and included two Washington state senators, the cofounder of Earth Day, office workers, a member of the Spokane Indian tribe, a cancer survivor and a priest. Some ate organic food, and some did not. While the test subjects certainly were varied, the results were remarkably similar.

All of the participants tested positive for a toxic soup of chemicals in their bodies. Each of the participants had from 26 to 39 chemicals inside them. All participants had some level of toxic flame retardants, phthalates, and Teflon-related chemicals in their systems. These chemicals are associated with a number of health conditions, including infertility, cancer and learning disabilities.

While it is encouraging that the CDC and other notable agencies have taken notice and taken charge of acquiring data to better understand the effects of chemical exposure, there is a disturbing undertone to the studies. The NER website (<http://www.cdc.gov/exposurereport>) clearly states that the purpose of these tests is to provide data in an attempt to better understand what levels of different chemicals will cause health problems when absorbed into our bodies. This essentially makes us human science experiments.

In response to public demand and obvious health and environmental issues, the California state government has begun implementing the California Green Chemistry Initiative (CGCI), which is attempting to overhaul the way chemicals are made and used in the state of California. With time and awareness, hopefully other state and national governments will follow suit and update their, for the most part, outdated and insufficient environmental and health laws to include more strict regulations on chemical production and use.

Proposals set forth in the act include a website database (CGCI Final Report; pg 25, paragraph 2), as well as a public clearinghouse (pg 27, paragraph 2), that will disclose all “non-confidential” ingredients in products manufactured and/or sold in California and their potential environmental and health hazards. All producers at every stage of production will be required to disclose non-secretive ingredients for use by the manufacturers, retailers and consumers that will use the product down the line. Hopefully, this will add a significant amount of transparency in products produced and used in California.

While this piece of legislation will provide consumers with far more information regarding the raw materials and processes used to make their products, it has its flaws. For example, confidential ingredients in certain products will only be able to be accessed by approved federal and state employees (pg 25, paragraph 2). This means that companies with “secret ingredients” in their products (such as the patented and proprietary chemical makeup of a number of memory foam and blended polyurethane mattresses) will probably not be made available to the public. As of right now, California is the only state or federal government with plans to create such a portal to disclose ingredients in products (pg 26, paragraph 5), and they are getting significant push back from manufacturers.

To truly protect Americans, chemical manufacturers should be required to perform long-term tests and have an affirmative duty to establish, in the same way the FDA requires testing on new prescription drugs, that their products are safe for humans and the environment.

A new bill, AB 289, that was put into place in California in 2006, includes an addition to the Health and Safety Code (Chapter 699, Sections 57018-57020), which allows the Department of Toxic Substances Control (DTSC)

to request that chemical manufacturers turn over relevant information regarding the procedures used to analyze chemicals for safety, as well as the intended use and mode of transportation for those chemicals. Companies to whom the request was sent will have one year to assemble and turn over the necessary information. In addition, manufacturers are required under this bill to notify the EPA at least 90 days in advance before they manufacture a new chemical. Like the CGCI, the new bill applies to any businesses that manufacture or sell chemicals in the state of California. The chemicals that are chosen for companies to provide information on will be made public on the DTSC and Cal/EPA websites. Any information found on those chemicals through public sources will be made available on the site as well. Unfortunately, and also similar to the CGCI, chemicals or mixtures that a company considers a “trade secret” will be reviewed and, if found appropriate, will not be released to the public.

Further information on both the CGCI and AB 289 is available on the California Department of Toxic Substances Control website, www.dtsc.ca.gov.

The CGCI and AB 289 are two giant steps forward in resolving the health and environmental issues put forth when common products are made and used. The goals set forth in the initiative are ambitious and complex, and will require extensive time and funding, however. Significant effort and cooperation will need to be put forth from government agencies, businesses and private citizens in order for the proposed changes to take place and the legislation to be effective. The best strategy as individual consumers is keeping all products we consume as safe as possible instead of waiting for legislation to tell companies which chemicals they can and can't use. Simply eliminating as many chemicals as possible in our everyday lives is the most effective way to ensure the health and safety of ourselves and our families. An organic bedroom is the very best place to start eliminating chemicals due to the amount of time we spend there, and the sheer amount of chemicals we may be exposed to in that long-term breathing environment. This is not to mention the close contact our bedding has with our skin, which is the largest organ and the most susceptible way for chemicals to enter our body.

Hopefully, these pieces of state legislation will help to set national examples and encourage the short- and long-range studies necessary to evaluate the low-level, chronic chemical exposures that we all face on a daily basis.

On July 22, 2010, the Committee on Energy and Commerce, headed by House Representative Henry A. Waxman, introduced the Toxic Chemicals Safety Act (H.R. 5820), which aims to update the antiquated Toxic Substances Control Act of 1976. The original Toxic Substances Control Act exempted the chemical manufacturers from providing any safety information to the EPA for all chemicals produced before 1979, and the chemical industry is not about to voluntarily pursue research or publish information that could create legal liabilities. The EPA has proved ineffectual at evaluating the safety and healthfulness of chemical exposure, and even if they had been funded and staffed for the task, corporate claims of proprietary formulas (trade secrets) and confidential business information often block their inquiries.

In a testimony regarding the necessity of H.R. 5820, Ken Cook, head of the Environmental Working Group (www.ewg.org) stated that “Because the Toxic Substances Control Act of 1976 leaves the government so stunningly powerless to deal with the toxic soup from chemicals in the environment and, indeed, in the blood of all of us, the American people have lost confidence, have lost trust, that the products they are using, the chemicals they are being exposed to, are safe.” A written version of the oral testimony can be downloaded from <http://www.ewg.org/ken-cook-proposal-to-reform-federal-chemicals-law>.

The 2010 Toxic Chemicals Safety Act gives the EPA the necessary power and funding to better monitor and control chemical production and public exposure to potentially harmful chemicals, and will expand government research and regulation of chemically produced substances. A summary of the act, as well as the entire text, can be read at <http://energycommerce.house.gov>.

The new act will update the original to include chemicals that weren’t included before, mainly because they hadn’t been invented yet, or hadn’t been tested for safety. A group of 19 chemicals will be included immediately, and the list is required to be expanded by the administrator to include 300 chemicals within a year of the act’s implementation (section 6; pg 42, line 18). The complete list of these chemicals can be found on page 41; line 21 through page 42; line 17 of H.R. 5820. This list will be updated regularly, and will be made available to the public via a website database. Chemical manufacturers will be required to submit the chemicals and mixtures that

they produce, as well as the testing methods used and determinations regarding environmental and health dangers, although some exceptions will be made (section 14; page 86). Like the CGCI, the Toxic Chemicals Safety Act will aim to regulate chemicals at their source rather than at their disposal. Predictably, chemical companies are not enthusiastic about the new bill.

Due to increased awareness and concern about the health problems being linked to manufactured chemicals, new laws and legislation are being put into place to give consumers more protection from unsafe and untested chemicals. Both the CGCI and the Toxic Chemicals Safety Act of 2010 are aimed at regulating chemical production and use, and making information on what chemicals go into products, and their potential hazards, much more publicly available. The burden of educating ourselves and making the best choices in which products to buy and consume is still, and will remain to be, largely with the consumer. While some of the most dangerous chemicals will be regulated more strictly, many will still be allowed in production processes. In addition, new synthetic chemicals are being produced more and more rapidly, making it impossible to test them all for environmental and human safety in a timely manner.

So, how can individuals defend themselves from chemical exposures? BY AVOIDING AS MANY OF THEM AS POSSIBLE! This book will show you how.