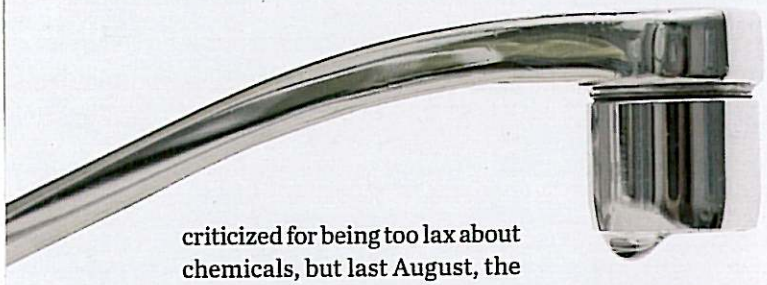
IS YOUR TAP WATER SAFE?

Hormones, drugs, even pesticides could be flowing from your faucet. No one can say for sure, because the government doesn't require testing for them. But in groundbreaking research, Good Housekeeping found ordinary water pitchers and refrigerator filters that can get rid of these scary chemicals

It's mid-afternoon, and I'm at my desk writing, eating leftover pasta, and sipping a glass of water. I hear the mailbox creak open outside and hop up to retrieve its contents. Bills. More bills. And my yearly water report. I pop open the circle of plastic tape and read the results: no violations. My water is in compliance with every drinking-water standard regulated by the Environmental Protection Agency (EPA). Not that it's perfect: Barium, chromium, copper, lead, nitrate, and other chemicals, as well as E. coli (*E. coli!?*), have been detected over the past year.

In fact, those contaminants are proverbial drops in the bucket. Antibiotics, hormones, a cancer drug, a chemical found in gasoline, antiseizure medication... research shows that hundreds of unregulated contaminants may be flowing from my tap—largely invisible, tasteless, and undetectable. They won't be on my water report (or yours) because they are not on the government's list of contaminants to monitor. And although they're at low levels, no one knows how dangerous they might be when they're all mixed together in the water supply and consumed over a lifetime. The government has frequently been

By Rachael Moeller Gorman



criticized for being too lax about chemicals, but last August, the nonpartisan Government Accountability Office issued a report urging the EPA to coordinate research on what contaminants like these could be doing to us.

That's why, to help you take matters into your own hands, Good Housekeeping partnered with the Arizona Laboratory for Emerging Contaminants at the University of Arizona, one of the world's leading labs for study of unregulated chemicals. Together with the GH Research Institute, the lab performed extensive testing—the first-ever such analysis—to see whether everyday filters, like the ones in water pitchers and refrigerators, can remove some of these chemicals. GH also joined forces with the Water Sciences Laboratory at the University of Nebraska in order to test home contaminant-detection kits.

Here's what you need to know, plus smart, easy ways to protect your family.

What's (Sort of) Regulated

By law, your local water system must test municipal drinking water for some 90 substances and organisms—including copper, uranium, and lead—and report whether any have been found and at what levels, as well as whether any exceed federally mandated Maximum Contaminant Levels—MCLs (see "How to Read Your Water Report," page 183). And if the levels are too high? Then, under the federal Safe Drinking Water Act and Amendments, your town is supposed to take measures to lower them.

Yet in fiscal year 2010 (the latest data available), 10% of all community water systems—serving more than 23 million people—sold water to consumers that violated at least one health-based EPA standard. Many of those violations were due to elevated levels of coliform bacteria, an indicator of how well a treatment plant is (or isn't) cleaning the water. When coliform levels are high, it can mean the water isn't being adequately disinfected—and other bacteria, such as E. coli, could well be thriving, too. The treatment plant must then do further testing for the more dangerous bacteria, including those that cause GI illnesses (diarrhea, vomiting), which can be particularly risky for small children and the elderly.

Most of the other 2010 violations were caused by excessive amounts of a chemical, such as arsenic or nitrate. Arsenic is especially worrisome: Studies show that it may be linked to an array of health problems, from developmental disorders and heart disease to numerous types of cancer, including bladder, lung, liver, skin, and kidney. Even more concerning, some experts think that arsenic might be harmful *below* its current EPA standard, a level that was already lowered (from 50 parts per billion to 10) in 2001. "As newer studies come out, they're showing health problems at lower and lower doses [of arsenic], including some conditions, such as immune problems and cognitive effects in children, we've never associated with it before," says Joshua W. Hamilton, Ph.D., a project leader in the Dartmouth Toxic Metals Superfund Research Program at Dartmouth College. In preliminary research

Spikes of dangerous chemicals may be averaged into your water report—and you'll never know it

in Hamilton's lab, when pregnant and lactating mice were given drinking water containing arsenic at the current EPA standard, their pups had significant defects in growth and development and weakened immune systems.

And those are just the violations we know about; some areas don't check their water at all or, if they do, don't report test results. We're not talking about just a few rogue violators: In 2009, 28% of all U.S. systems broke at least one significant EPA rule. If the violation is "innocent"—a town lacks the resources or technical expertise to meet the standards—the state or the EPA may lend assistance or money to help. But EPA grants *continued on page 134*

DIRTY 15

Chemical cocktails may be flowing from your tap. These 15, all of which have been found in drinking water, were used in our tests of water filters

- Atrazine (herbicide)
- BPA (bisphenol A, used in production of plastics and in resins in many metal can liners)
- Carbamazepine (anticonvulsant)
- DEET (insect repellent)
- Estrone (hormone)
- Fluoxetine (Prozac, an antidepressant)
- Ibuprofen (pain reliever)
- PFOA (perfluorooctanoic acid, used to make nonstick-cookware coatings and other products)
- PFOS (perfluorooctanesulfonic acid, a key ingredient in stain repellents)
- Primidone (anticonvulsant)
- Sucralose (artificial sweetener)
- Sulfamethoxazole (antibiotic)
- TCEP (flame retardant)
- Tonalide (fragrance)
- Trimethoprim (antibiotic)

Photographs, this page: istockphoto. Previous page: Natalie Kauffman/First Light/Getty Images. Opposite page: PHILIP FRIEDMAN/STUDIO D (pitchers).

FROM THE GOOD HOUSEKEEPING RESEARCH INSTITUTE

TESTED

FILTERS THAT REALLY WORK

No home filter has been certified to remove pharmaceuticals and certain other (emerging) contaminants. But as it turns out, some refrigerator filters do a great job of it, and some tabletop pitchers work very well, too. That's what months of testing by the GH Research Institute, partnering with the Arizona Laboratory for Emerging Contaminants at the University of Arizona, revealed in a groundbreaking experiment.

FILTER	GE MSWF Refrigerator Filter $41.15	Whirlpool Filter 1 Refrigerator Filter $40	Brita Riviera 8-Cup Pitcher $35	Pur CR-6000 7-Cup Pitcher $15	ZeroWater 8-Cup Pitcher $35
WHAT IT REMOVED	Above 92% for all contaminants except BPA, which was above 90% on all readings but the first two (75% and 81%)	Above 92% for all contaminants	Above 60% for all contaminants except PFOA (55%) and sucralose (49%), but for only half the filter's life	All estrone. It removed above 71% of all drugs as well as PFOS, and above 80% of DEET, tonalide, TCEP, and BPA	Above 95% of estrone, PFOA, PFOS, fluoxetine, BPA, ibuprofen; above 80% of atrazine, tonalide, TCEP, DEET, and all other drugs but primidone (73%)
GOOD TO KNOW	Works only with certain GE refrigerators	Works only with certain Whirlpool refrigerators	Throughout the filter's life, its removal rate for all contaminants decreased more sharply than those of the others tested	Removed atrazine, sucralose, and PFOA slightly less effectively than other contaminants (under 65% at the end of filter's life)	Since our testing, the company has modified the filter to speed up its flow rate, which may affect its performance
FILTER LIFE SPAN	Six months or 300 gallons	Six months or 200 gallons	Two months or 40 gallons	Two months or 40 gallons	Based on readings of included test meter

HOW WE TESTED The laboratory spiked Tucson, AZ, municipal tap water with 15 contaminants of concern that have all been found in drinking water (for technical reasons, TCEP was not tested on the refrigerator filters; for a complete list of test contaminants, see "Dirty 15," *opposite*). Then, to simulate the weeks or months of use that pitcher and fridge filters would get in a real home, the researchers passed gallons and gallons of contaminated water through each device until it reached the manufacturer's estimated filter lifetime. The lab also tested at four points along the way to see if a filter's performance began to fall off earlier.

are scarce, so while communities wait for them, residents continue to drink suspect water. The EPA can take legal action as well, or fine a water authority that won't comply—but in the past 10 years, out of thousands and thousands of violations, there have been only 349 cases of towns, other water suppliers, or industry paying a fine for violating any part of the Safe Drinking Water Act.

Even among the lawful, accidents happen. "Although we probably have one of the safest drinking-water systems in the world, every year there are some breaks in the system," says Linda Birnbaum, Ph.D., director of the National Institute of Environmental Health Sciences. In 2007–2008, 36 outbreaks from drinking water led to 4,128 cases of illness (including a salmonella outbreak in Colorado that sickened 1,300 people) and three deaths. But the worst case in recent times occurred in 1993, when an estimated 403,000 Milwaukee residents got sick—and 54 died—from water contaminated with the spore of cryptosporidium, a parasite that causes diarrheal disease, after a treatment plant failed to properly filter water from Lake Michigan. Nothing on that scale has happened since, but waterborne microbes cause an estimated 19.5 million cases of illness each year in the U.S.

Water can also become contaminated after it leaves the treatment plant but before it reaches your faucet, says Shane Snyder, Ph.D., codirector of the Arizona Laboratory for Emerging Contaminants and professor of chemical and environmental engineering at the University of Arizona. "Water may sit in a tank, sometimes for over a week, mixing with the chlorine used for disinfection—which may result in elevated levels of disinfection by-products," he says. The consequence: chemicals that might be harmful.

Your own home could be a problem, too. Older houses may have pipes that can leach lead into the water above the EPA cutoff of 15 parts per billion. Such levels sound minuscule, but lead is so potent, it can harm brain and nervous system development in fetuses and children.

SNEAKY SPIKES While public water systems are required to check the water, they are legally allowed to test anywhere from quarterly to once a year (or even less, depending on the chemical and the size of the water system). If a spike in a dangerous contaminant occurs between tests, it can simply be missed. Also, when only the "running annual average" is counted, any upticks (if they happen to be measured) are merged with the rest of the year's results, yielding a deceptively clean bill of health.

Take atrazine, a weed killer that's widely used on agricultural crops (especially corn) as well as on golf courses and residential lawns and along highways. The herbicide, linked to reproductive abnormalities and to immune system problems, is banned in the European Union, and some experts believe that would be a good idea in this country, too. "Given the health and environmental concerns, and the fact that there are safer alternatives, there's good reason to phase it out," says Andrew Wetzler, director of the Land & Wildlife Program of the Natural Resources Defense Council (NRDC).

Even if your water is "legal" overall for atrazine, you could still have problems at certain times of the year. In agricultural regions, levels of the herbicide spike in tap water in spring and summer, after farmers apply it to their fields. In a 2009 report from the NRDC, 39% of public water systems surveyed in the midwestern and southern U.S.—including corn-farming Illinois, Indiana, Kansas, Kentucky, Louisiana, Missouri, and Nebraska—had one-time atrazine peaks above the EPA limit of 3 parts per billion. Yet, because spikes like these are averaged in (or not counted), only three of the 139 water systems sampled were considered in violation of the atrazine standard.

Meanwhile, "people are using and drinking the water for days or weeks at a time," says Wetzler. This is particularly worrisome if a high concentration of atrazine coincides with a vulnerable stage of life: In a 2009 study, researchers at Purdue University found that the risk of mothers' delivering small babies—with birth weights below the 10th percentile—increased as the concentration of atrazine (along with other herbicides also present) increased. Even when concentrations were almost 30 times lower than the legal standard, babies were significantly smaller. What this means for their health is unknown, though other research has shown *continued on page 180*

IS BOTTLED WATER BETTER?

The label may call it "pure," but is it? You can't tell. Bottled water isn't covered by the Safe Drinking Water Act; it's regulated by the FDA, which doesn't require bottlers to share quality-testing info with the public. Independent research shows bottled water may be no freer from contaminants than tap: In 2008, the Environmental Working Group found acetaminophen, caffeine, arsenic, and nitrate in 10 brands of bottled water.

Photograph, this page: istockphoto. Opposite page: Andreas Kuehn/Stone/Getty Images.

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that smaller babies may be more prone to learning difficulties, obesity, and other problems later in life.

In addition to developing fetuses, pregnant women and children going through puberty may also be sensitive to environmental chemicals. Rapid changes are happening in the body at these times, which may make it especially vulnerable to the long-term effects of pollutants, says Birnbaum. And studies on atrazine in fish and amphibians have found that their immune systems don't work as well; they also have more infections and changes in sex organs. In 2009, following the NRDC report, the EPA announced that it would begin re-evaluating how risky atrazine is to our health and whether it needs to be regulated in a different way. A scientific advisory panel and the EPA are still working on that review. "It's good they're looking into it," says Wetzler, "but it's moving far too slowly."

What's Not Regulated: Drugs in Your Water

About 15 years ago, researchers testing tap water in Berlin kept coming up with one unexpected compound. It turned out to be clofibric acid, the by-product of a cholesterol-lowering drug—and the first medication ever found in drinking water.

Other scientists became concerned; the U.S. Geological Survey (USGS), a government agency that provides scientific information about the country's natural resources, began to work on developing the technology to study the problem. In 2004, USGS water specialist Paul Stackelberg and his colleagues found numerous pharmaceuticals in raw (untreated) water and low levels of an antiseizure drug, as well as insect-repellent ingredients and other contaminants, in drinking water. Three years later, Snyder, whose team tested both raw and drinking-water samples at 18 U.S. sites, added ibuprofen, meprobamate (an antianxiety medication), and phenytoin (another antiseizure drug), along with other pharmaceuticals, to the list. Then, in 2008, an Associated Press investigation of tests conducted by water suppliers all over the country found low concentrations of dozens more pharmaceuticals in drinking water—including antibiotics, aspirin, blood pressure medications, and an antidepressant. "It was eye-opening," says Dana Kolpin, team leader of the Emerging Contaminants in the Environment project at the USGS. "Even though the pharmaceuticals were at low levels, we didn't know then—and we still don't know—how toxic this cocktail of drugs and other contaminants might be."

You won't be seeing these chemicals on your water report for one simple reason: The government doesn't regulate them. The EPA has placed some on its latest Contaminant Candidate List, a collection of chemicals it is considering overseeing. But of the thousands of pharmaceuticals on the market, "just 10 that are loosely defined as pharmaceuticals have made it to the list," says Snyder. What's more, the list seems to be engraved in stone. Only one chemical of any kind has actually moved off the Contaminant Candidate List in order to be regulated since the list was first published in 1998. It was perchlorate (used to produce rocket fuel). Don't hold your breath waiting for the others: Even the Association of Metropolitan Water Agencies, which represents the nation's largest public water suppliers, was moved in 2008 to urge the EPA to focus on new ways to remove drugs from water.

True, the levels of these drugs are so low that individually they might not pose much threat. "You wouldn't get enough aspirin to cure your headache," says John Sumpter, Ph.D., a British researcher who studies environmental contaminants. "But

WELL WATER: DIGGING FOR ANSWERS

The issues are even murkier if your water doesn't come from a public facility. Here, extra steps you should take to be safe

Private wells are not regulated by the federal government—which means that unless you've had your own water tested, what you're drinking and bathing in could be unhealthy. In New Hampshire, for example, more than 10% of wells exceed the EPA limit for arsenic. Well water in Arizona, California, Colorado, Maine, Michigan, Nevada, and New Mexico also contains high levels.

By EPA guidelines, wells should be tested yearly for total coliform bacteria as well as for nitrate, total dissolved solids, and pH levels. Your county may test for nitrate and bacteria; for other substances, it's best to use a state-certified lab. You might want to ask what contaminants are locally problematic so you can test specifically for those. The EPA's website (water.epa.gov/drink/index.cfm) can tell you more about local contaminants or nearby conditions that might call for having your well tested.

Illustration by istockphoto

TESTED

HOME WATER TESTS: THE CLAIMS, THE TRUTH

The GH Research Institute worked with the Water Sciences Laboratory at the University of Nebraska–Lincoln to test four popular models of at-home water-test kits for accuracy. BOTTOM LINE >> No kit was perfect, though PurTest came the closest. First Alert was rated second. Three kits failed to detect some water conditions or regulated contaminants, and three measured them too low or too high—a potential problem, since you may have no way to know whether you need to take any clean-up or other action. To see which problems each kit detected, go to goodhousekeeping.com/water-tests.

	DETECTION ACCURACY	MISSED	TOO LOW	TOO HIGH	WHAT ELSE YOU SHOULD KNOW
Complete Home Water Quality Test Kit $25	4 of 13*	Hardness, total chlorine, copper	Iron, nitrate	Chloride, sulfate, alkalinity, free chlorine	Instructions recommend that you use an ultraviolet light to read results on the E. coli test, though regular light seemed to work fine
First Alert Drinking Water Test Model WT1 $17	8 of 9*	Total chlorine	None	None	No duplicate strips were provided for most of the tests, so if you use, test carefully
Pro-Lab Water Quality Do It Yourself Test Kit Model WQ105 $7	6 of 10*	Copper, total chlorine	Alkalinity (but too high in another test), hardness	Alkalinity	Although there's a chemical test for hydrogen sulfide, this kit relies on a sniff test instead
PurTest Home Water Analysis Model P33 $40	10 of 12*	None	None	Iron, alkalinity	Easiest kit to use

HOW WE TESTED First, lab researchers tested the kits using Lincoln, NE, tap water that had been analyzed for contaminants and water-quality conditions. Next, they spiked water samples with carefully measured concentrations of two herbicides (atrazine and simazine), nitrate, copper, lead, bacteria, and other common contaminants. They then followed each test kit's instructions—as you would at home—to see how it performed.

*contaminants/water conditions

we're not dealing with one chemical here—we're dealing with hundreds."

Or more. Over 80,000 chemicals are registered for use in the U.S., and each year some 2,000 new ones are introduced for use in foods, drugs, household cleaners, lawn-care products, and personal-care items like deodorants and shampoo. Every day, as we excrete and flush these items, the chemical-laden wastewater goes through a sewage-treatment plant, and treated water is released into streams and rivers. But many of these pollutants remain—and make their way to a drinking-water treatment plant downstream. Or, if we toss the products in the trash, they often wind up in landfills, where they can seep into groundwater—and ultimately can come through our taps.

IFFY COCKTAILS Adding together even low levels of chemicals might mean a lot of little risks compounded into a bigger potential danger. And in some cases chemicals may interact, producing an even more worrisome compound. A chemical, for example, may react with a disinfectant used to purify water at the treatment plant. A 2006 study found that adding a chlorine disinfectant to water contaminated with acetaminophen (the active ingredient in Tylenol) produced two toxic compounds—one may damage genes; the other hurts the liver. And when Canadian researchers added a different disinfectant (chloramine) to 20 pharmaceuticals and personal-care products, they ended up making nitrosamines—probable carcinogens.

We don't know the exact levels of these compounds in our drinking water, but since millions of us pop a Tylenol when our heads hurt, and since chlorine and chloramine use is ubiquitous, risky by-products could be widespread in water, says Snyder.

Tiny Doses, Big Problems

One type of chemical doesn't have to mix with anything to be risky: a compound known as an endocrine →

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WHAT HOME SYSTEMS CAN (AND CAN'T) DO

Confronted with a problem with their water, many homeowners use under-the-sink or countertop units that contain special filters. Or people may install whole-house filters (known as point-of-entry devices), which cover not just the water they're drinking, but what flows into tubs, showers, and appliances.

If the water is too "hard"—loaded with calcium and magnesium—minerals can build up in pipes and washing and dishwashing machines, causing everything from skin irritations to spotted glassware. An ion-exchange filter (water softener) draws in the harder minerals, trading them for "softer" sodium and potassium. Other types of filters tackle different problems. An activated carbon filter gets rid of unpleasant odors and tastes; a reverse-osmosis system filters out many EPA-regulated contaminants; and an ultraviolet filter kills bacteria and other microorganisms.

These filters can work well. In a 2009 University of California, Berkeley, study of older adults, those who used a combo reverse-osmosis/UV filter suffered about 12% fewer gastrointestinal illnesses than participants who drank regular unfiltered water. But point-of-entry filters have two major drawbacks: They're expensive (costing anywhere from about $200 for a simple carbon filter to $2,000 for a reverse-osmosis system), and they've been certified mainly to clear EPA-regulated contaminants—the ones on your water report. It's uncertain how well they might filter other potentially risky compounds.

disruptor, which knocks your body's hormones out of whack. Hormones affect "just about every physiological process you can imagine—our cardiovascular, reproductive, and central nervous systems," says Sumpter. These chemicals are not like regular toxins—with those, if you're exposed to a high enough dose, you may get sick right away. Rather, with endocrine disruptors, if you take in even a tiny amount at a critical point of development, especially in utero or during infancy, the exposure could trigger reproductive problems or illnesses when you're older—everything from learning issues to infertility, heart disease, or cancer. Even the Endocrine Society, a group of typically nose-to-the-lab-bench scientists, has become sufficiently concerned about the potential risks of endocrine disruptors that it has taken an uncharacteristically activist stand. In a review study published in 2009, endocrinologists writing on behalf of the society urged the association to "actively engage in lobbying for regulation...to decrease human exposure to the many endocrine-disrupting agents."

To understand the consequences of such exposure, in 2001 a team of scientists from Canada and the U.S. EPA began regularly adding a synthetic hormone found in birth control pills to a test lake in northwestern Ontario where they were studying fathead minnows. The concentration was tiny—just 5 to 6 parts per trillion, an amount sometimes found in streams and rivers that receive municipal wastewater, say the scientists. Still after just seven weeks, the male minnows were

HOW TO BE CLEANER...AND GREENER

Everyone lives downstream of someone else: I use bug spray...and you may drink DEET. In addition to protecting our own families, we need to be good neighbors. The following steps can help reduce the impact on our drinking water of the chemicals we use every day.

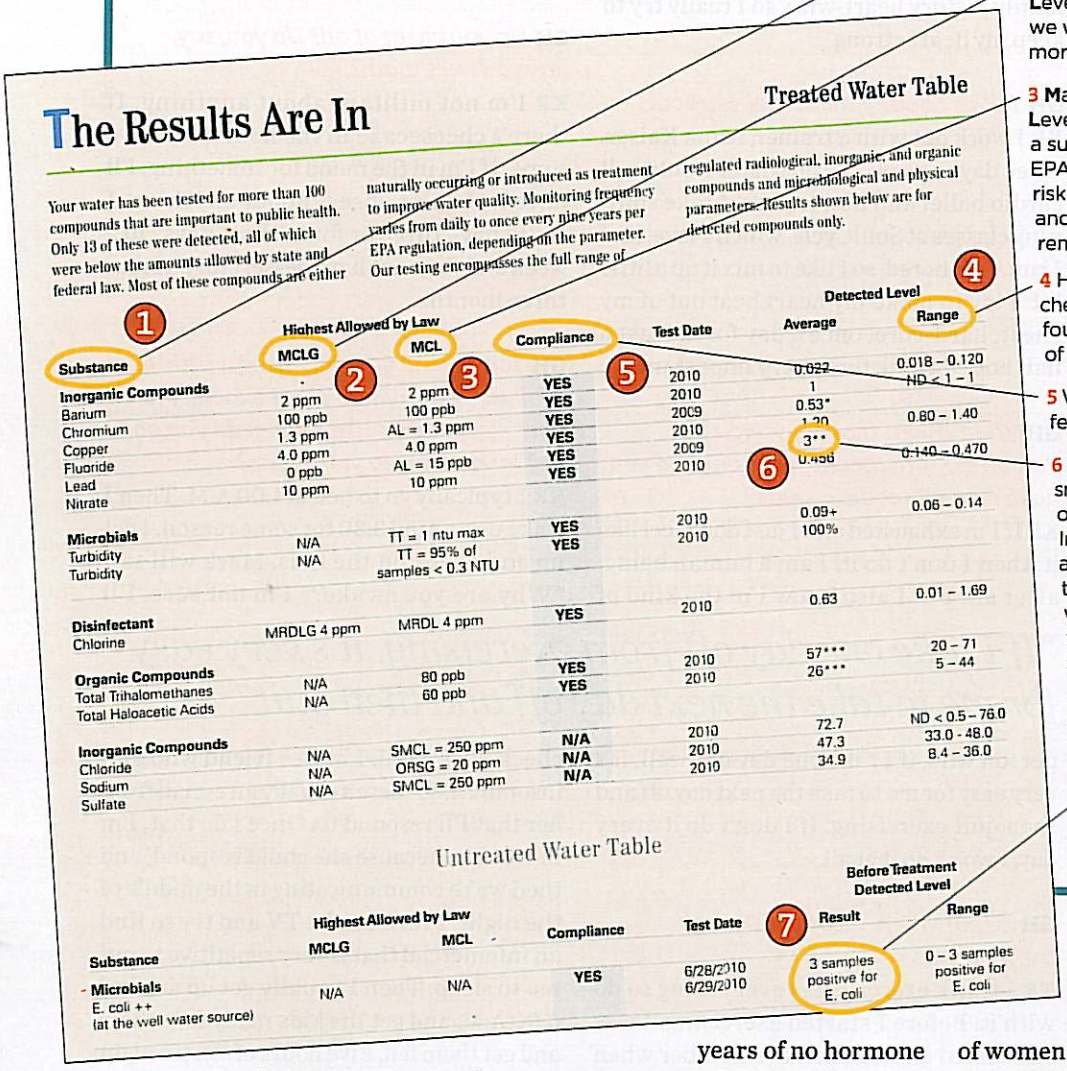
DISPOSE OF MEDICINES PROPERLY Instead of flushing unused pills or potions down the toilet (so they end up in a sewage-treatment plant that may not be able to remove them) or tossing them in the trash (if they end up in a landfill, they could leach into the groundwater), bring your half-finished bottle to a hazardous-waste collection site or to a drugstore or other center that has a take-back program. To find a participating pharmacy near your home, go to disposemymeds.org and click on the locator link.

CHOOSE MORE NATURAL PRODUCTS The fewer chemicals you use, the fewer will end up in the water. GoodGuide (goodguide.com), an organization led by a team of scientific experts, rates thousands of personal-care, food, and household products for their impact on the environment.

SUPPORT ENVIRONMENTAL LEGISLATION Unlike Europe, the United States has allowed chemicals to be sold without requiring much research into the ways they affect human health. Last year, in hopes of tightening regulation, Senator Frank Lautenberg (D-NJ) proposed the Safe Chemicals Act. This modernization of the Toxic Substances Control Act would require companies to provide health and environmental information to prove substances are safe before they could be sold or remain on the market. For updates, go to govtrack.us/congress and enter "Safe Chemicals" in the search box.

HOW TO READ YOUR WATER REPORT

Under the federal Safe Drinking Water Act, all community water systems must provide a water-quality report to their customers yearly, by July 1. Then you have to read it! Here, from one community report, is help.



The Results Are In

Your water has been tested for more than 100 compounds that are important to public health. Only 13 of these were detected, all of which were below the amounts allowed by state and federal law. Most of these compounds are either naturally occurring or introduced as treatment to improve water quality. Monitoring frequency varies from daily to once every nine years per EPA regulation, depending on the parameter. Our testing encompasses the full range of regulated radiological, inorganic, and organic compounds and microbiological and physical parameters. Results shown below are for detected compounds only.

Treated Water Table

Substance	Highest Allowed by Law: MCLG (2)	MCL (3)	Compliance (5)	Test Date	Detected Level: Average (4)	Range (4)
Inorganic Compounds						
Barium	2 ppm	2 ppm	YES	2010	0.022	0.018 – 0.120
Chromium	100 ppb	100 ppb	YES	2010	1	ND < 1 – 1
Copper	1.3 ppm	AL = 1.3 ppm	YES	2009	0.53*	
Fluoride	4.0 ppm	4.0 ppm	YES	2010	1.20	0.80 – 1.40
Lead	0 ppb	AL = 15 ppb	YES	2009	3**	
Nitrate	10 ppm	10 ppm	YES	2010	0.456 (6)	0.140 – 0.470
Microbials						
Turbidity	N/A	TT = 1 ntu max	YES	2010	0.09+	0.06 – 0.14
Turbidity	N/A	TT = 95% of samples < 0.3 NTU	YES	2010	100%	
Disinfectant						
Chlorine	MRDLG 4 ppm	MRDL 4 ppm	YES	2010	0.63	0.01 – 1.69
Organic Compounds						
Total Trihalomethanes	N/A	80 ppb	YES	2010	57***	20 – 71
Total Haloacetic Acids	N/A	60 ppb	YES	2010	26***	5 – 44
Inorganic Compounds						
Chloride	N/A	SMCL = 250 ppm	N/A	2010	72.7	ND < 0.5 – 76.0
Sodium	N/A	ORSG = 20 ppm	N/A	2010	47.3	33.0 - 48.0
Sulfate	N/A	SMCL = 250 ppm	N/A	2010	34.9	8.4 – 36.0

Untreated Water Table

Substance	Highest Allowed by Law: MCLG	MCL	Compliance	Test Date	Before Treatment Detected Level: Result (7)	Range
Microbials						
E. coli ++ (at the well water source)	N/A	N/A	YES	6/28/2010 6/29/2010	3 samples positive for E. coli	0 – 3 samples positive for E. coli

1 Contaminants regulated by the EPA—only those detected during testing are listed

2 **M**aximum **C**ontaminant **L**evel **G**oal: In an ideal world, we wouldn't be exposed to more than this level

3 **M**aximum **C**ontaminant **L**evel: The highest amount of a substance allowed by the EPA, it's based on health risks as well as the cost and technical difficulty of removing the contaminant

4 How high and low the chemical's concentration was found to be over the course of two or more tests

5 Whether the level detected fell within EPA standards

6 This report noted that a small, though legal, amount of lead had been detected. In a footnote, the water authority suggested that those with concerns might wish to have their water tested or let the tap run before using the water

7 Here, authorities detected one sample of this bacteria. They shut down the well and, after finding two additional samples, disinfected it before distribution

producing high levels of a protein that helps make eggs in female fish. After one year, males were producing less sperm; eventually, they started developing eggs and largely stopped reproducing.

After three years, the researchers ceased adding the hormone to the lake. Still, by the five-year mark, the fish had almost died off in the lake—near-extinction of a species due to an infinitesimal amount of a hormone. In year six, however—after three years of no hormone exposure—the fish recovered.

As it turns out, male fish all over the U.S. are being made more feminine—not by the actions of scientists studying hormone disruption, but by the wastewater that flows into their habitats. And now, troubling evidence suggests that humans are being affected, too. In a study published last November, researchers showed that in countries where birth control pills are widely used, rates of prostate cancer are also high. "Although the amount of estrogen one woman would excrete is minimal, when millions of women take it for a long period of time, it may have an environmental effect," says study coauthor David Margel, M.D., a urologist at the University of Toronto.

Although this research is very preliminary, it shows the urgent need to learn more about the chemicals lurking in the water we drink every day. And until we do know more, we also need to understand how we can protect our families. Fortunately, the testing undertaken by Good Housekeeping provides answers. ■

SAFE AT HOME

YOUR WATER QUESTIONS, ANSWERED

- **Do I have to be concerned about water used for cooking—say, to boil pasta?**
  Boiling kills viruses and bacteria, including E. coli, but it can concentrate other contaminants like nitrate, arsenic, and lead, making them potentially harmful. The best way to protect yourself is to "know the source of your water," says Catherine Thomasson, M.D., executive director of Physicians for Social Responsibility. Your yearly water report will tell you that. (Look for an online copy of your report at cfpub.epa.gov/safewater/ccr/index.cfm; if it's not there, the site provides contact info for all water systems.) If the source is a major river that flows past farms and industrial sites or carries treated wastewater from major cities, then consider using filtered water for cooking and drinking. But if your water comes from a pristine source up in the mountains or from a deep, pure aquifer, you probably don't need to.

- **Is it safe to rinse fruits and vegetables with tap water?**
  Yes. It's not just safe; it's necessary. You need to wash produce in order to remove any soil and microbes, says the U.S. Department of Agriculture, and Dr. Thomasson points out that the water runs off in the process. But if the source of your tap water is suspect (per the examples in the answer above), you might want to use filtered water.

- **Should I worry about contaminants when I shower?**
  There are a few toxins, primarily volatile organic compounds (VOCs), that can be "aerosolized" such that you could inhale them, says Dr. Thomasson. Some VOCs are already monitored in drinking water, but others are not. The highest risk would be well water that has not been tested, especially if there's industrial dumping or hydraulic fracturing (fracking) going on near your home.

- **What about babies and small children—is it safe for them to take a bath in water that hasn't been filtered?**
  "I wouldn't bother with filtered water unless your tap water source is extremely problematic," says Dr. Thomasson. In that case, of course, you would also want to use filtered water for drinking.

- **Will letting the tap run really get rid of lead?**
  It can flush the metal out of water that's been sitting in old pipes for over six hours (run till the water feels cold). But to be safest, have your water tested (use the first water of the morning). If the lead levels are high, use a filter that's certified to remove lead. And if you live in an apartment building, definitely have your water tested, since flushing the pipes may not do the trick.