The Top Ten Unfounded Health Scares of 2011

By ACSH Staff — December 27, 2011

I. Introduction

Some old scares refuse to die. This year finds us with revivals of more than a few stories that we had hoped would stay in the junk scares graveyard, where they belong. But from phthalates to genetically modified fish, consumers continue to be needlessly frightened about safe products. Still, we’ve also been kept on our toes with plenty of new scares — we’ve been told that the apple juice we give to our kids every day has dangerous amounts of arsenic, and that vaccinating teenagers against HPV to prevent cervical cancer can instead cause “mental retardation.”

At the American Council on Science and Health, our goal is to increase people’s awareness of actual threats to their health — smoking, for example — without their having to spend time worrying about things that pose no danger at all. Unfortunately, the goals of some politicians, the media, and certain activist groups can be somewhat different — they frequently aim to create a sensation and gain publicity without much regard for actual scientific evidence. Our annual list aims to quell fears by discussing the real evidence about these unscientific scares.

Even if specific scares are new, many of the factors that created the scares are the same as those we’ve seen for years. One common pattern is assuming that the mere presence of a substance in a given product, or in our bodies, implies that the product is dangerous. But as we’ve explained, many of these frightening-sounding substances pose no risk whatsoever when they are present in the miniscule quantities that such reports generally find. While a very large dose of arsenic, for instance, is obviously harmful, the tiny amounts of this compound that are present in foods we consume have no effect on our health.

Another common trend that creates equally baseless fears is the idea that, if a substance causes certain health effects when given to laboratory animals in very high doses, this substance must therefore cause the same health effects in humans. Time and again, we see that studies showing detrimental effects from high doses of chemicals in lab rats have little or no relevance to what will happen when humans are exposed to extremely low doses of these substances in daily life.

So, take a look at our list, and don’t worry — if these items don’t seem dangerous, that’s because they aren’t.

II. The Scares

1. The HPV Vaccine
The Scare: The CDC’s Advisory Committee on Immunization Practices (ACIP) recommends Gardasil and Cervarix, two vaccines that protect against the human papillomavirus (HPV), as a routine vaccination for girls aged 11 or 12. These vaccines target two forms of HPV—types 16 and 18—that are responsible for 70 percent of all cervical cancers [1]; Gardasil also targets two additional HPV strains that cause genital warts. By preventing infection with HPV, these vaccines protect against cervical, vulvar, and vaginal cancers. In fact, studies have found that these vaccines are both safe and 93 to 100 percent effective in preventing infection with HPV types 16 and 18 [2].

With over 35 million doses of Gardasil [3] distributed safely as of June this year, one wonders what problem anyone could have with such an important preventive measure. Yet many in the U.S. are up in arms against the HPV vaccine, claiming that it causes everything from mental retardation, to promiscuity, to death.

Origin of the Scare: The initial anti-vaccine scare began when The Lancet published a study by Dr. Andrew Wakefield in 1998 that claimed to link childhood vaccinations to autism. Although this study has since been retracted and proven entirely fraudulent, [4] the word still hasn’t fully gotten out that there is no link whatsoever between vaccines and autism.

With that original scare on people’s minds, Michele Bachmann, candidate for the Republican presidential nominee, had the stage perfectly primed to come forward with an outrageous claim about the HPV vaccine. Bachmann was vehemently opposed to Texas Governor Rick Perry’s 2007 executive order that sixth-grade girls in the state receive the HPV vaccine (an order that was overturned by the Legislature before it could be put into practice). This September, she asserted that Perry was putting girls’ lives in danger by imposing on them “what could potentially be a very dangerous drug.” To prove her point, Bachmann informed [5] NBC’s Today show viewers that, following a debate, a mother had come up to her and said that her daughter had suffered “mental retardation” after receiving the HPV vaccine.

Media Coverage: Michele Bachmann’s assertion [6] was swiftly and widely publicized, fueling the fears held by many across the nation that the HPV vaccine is dangerous. As Dr. Rodney E. Willoughby, a member of the committee on infectious diseases at the American Academy of Pediatrics, puts it, “These things always set you back about three years, which is exactly what we can’t afford.”

Rates of HPV vaccination were already discouragingly low [7] — only 32 percent of teenage girls last year received all three doses of the HPV vaccine necessary to confer immunity. This low immunization rate was due to a combination of factors, including a general fear of vaccines, a distaste among parents for giving young girls a vaccine to protect against a sexually transmitted virus, and the expense of the vaccine.

Unfortunately, fear of the HPV vaccine has been on the rise. In addition to Bachmann’s inappropriate comments, claims of horrendous side effects have been popping up around the world, generally promoted by alarmist anti-vaccine groups. Groups like the Australian Gardasil Girls — which is taking Merck, the manufacturer of Gardasil, to court over supposed side effects [8] — and the website “The Truth About Gardasil” [9] spread scare stories about how the vaccine has
apparently ruined young girls’ lives. With no attention to scientific evidence, these stories have been repeated in news reports around the country.

**ACSH Perspective:** The Centers for Disease Control and Prevention [10] (CDC) have found no unusual risks to girls who receive the HPV vaccine. The safety of the vaccine has been tracked closely through a variety of methods. One of these, the Vaccine Adverse Event Reporting System (VAERS), receives unconfirmed reports of adverse effects of the vaccine. Yet this system has not detected any pattern of serious side effects [11] associated with the vaccine; the rates of unusual adverse events and deaths are no different than what would be expected from chance alone. The most common side effects that are actually associated with the vaccine? Nothing more worrisome than pain and redness at the site of injection, or a mild fever.

When news arrived during the year that the HPV vaccine may also help prevent throat cancer [12] and anal cancer [13], conditions that can affect men as well, ACSH noted the importance of vaccinating both genders. “Gender parity is necessary here,” says ACSH’s Dr. Gilbert Ross. “HPV infects both men and women, and can lead to cancer in both as well. Parents who balk at this vaccine need to look at the facts.” Indeed, the CDC ruled in October to recommend routine HPV vaccination for preteen boys as well as girls.

**Bottom Line:** Considering that HPV is the most common sexually transmitted infection in the country, and over half of U.S. adults will be exposed to HPV at some point in their lifetimes, preventing this infection is an important concern for the entire population. The HPV vaccine is both safe and effective, but irresponsible claims by activists and politicians have seriously hindered efforts by the American Academy of Pediatrics and others to promote its widespread use. As ACSH’s Dr. Elizabeth Whelan asks, “What sort of society would debate over a vaccine that could save women’s lives?”

2. Apple Juice

**The Scare:** It’s the classic kids’ school lunch drink — an apple juice box. But Dr. Mehmet Oz, of The Dr. Oz Show, reported this year that parents are unknowingly feeding their little ones toxic arsenic each time they give them apple juice. He claimed that levels of arsenic in the juice can exceed safe levels — and with arsenic exposure linked to such health risks as various types of cancer, cardiovascular disease, and diabetes, this could be dangerous to public health.

**Origin of the Scare:** In September, Dr. Oz reported on his show that he’d had samples of apple juice tested in a lab for arsenic content. Since there are no official standards for the level of arsenic permitted in fruit juices, he compared the levels to the Food and Drug Administration’s (FDA’s) threshold for arsenic in drinking water (10 parts per billion) and found that some samples had arsenic levels that exceeded this standard. One source of this arsenic, he claimed, could be the two-thirds of apple juice concentrate that the U.S. imports from China, which has notoriously lax standards.

**Media Coverage:** The FDA responded [14] that Dr. Oz’s segment on arsenic in apple juice was highly misleading, and insisted that apple juice was safe to drink. In fact, when the agency tested
samples from the same lots of juice, its scientists obtained significantly lower numbers for arsenic levels — well below any level of concern. Following their investigation, the FDA criticized The Dr. Oz Show for measuring only levels of total arsenic and failing to make a distinction between organic and inorganic arsenic: Organic arsenic is considered essentially harmless, while inorganic arsenic, in high doses, can cause health problems. The juice companies, of course, were also strongly opposed to Dr. Oz’s report; they argued that not only did he use a testing method that was inappropriate for analyzing fruit juice, but also that their own tests revealed that arsenic levels were not a cause for concern.

Yet this did not stop the arsenic in apple juice scare from continuing to frighten the public. One informal measure, a CBS online poll, found that over 60 percent of respondents agreed with Dr. Oz. And to further add to the confusion, Dr. Oz made several misleading statements, such as telling his audience that “arsenic is a substance that shouldn’t be in food and could be associated with various public health problems, such as cancer.” People began to wonder why this frightening-sounding chemical was in their juice at all, despite the fact that arsenic is a naturally occurring element that is present in miniscule amounts in many kinds of foods and drinks, as well as in our bodies.

Then, at the end of November, an announcement from Consumer Reports stated that their Consumers Union had verified Dr. Oz’s results. Countering the FDA’s claim, they found that, not only did some commercial brands of apple juice contain arsenic levels above the drinking water standard, but that the majority of the arsenic was in the harmful, inorganic form.

ACSH Perspective: ACSH’s Dr. Gilbert Ross emphasizes that the presence of trace levels of arsenic in food is not a cause for panic. “The arsenic levels present in apple juice are miniscule and will not affect anyone’s health,” he says. “People should realize that arsenic is ubiquitous; it’s found in drinking water, potatoes, soil, and rocks.”

Dr. Ross has expounded upon the safety of low levels of arsenic in water in a 2004 ACSH publication he co-authored, entitled Arsenic, Drinking Water, and Health. This investigation found that even arsenic levels in water up to several times higher than FDA standards pose no health risk.

ACSH is in agreement with Dr. Richard Besser, ABC News Health and Medical Editor, who responded to Dr. Oz’s claims by publicly stating that the doctor was “manufacturing a health crisis based on faulty, incomplete data. This fear-mongering,” he said, “reminds me of yelling fire in a movie theater.”

Bottom Line: The FDA, in response to the Consumer Reports study, is presently looking into arsenic regulations in fruit juice, and reassessing the current level the agency has set as cause for concern in juice, which is now at 23 parts per billion. Yet this search is unlikely to uncover any hidden threat. As Don Zink, senior science advisor to the FDA Center for Food Safety and Applied Nutrition, puts it, “We have 20 years of data from testing apple juice for arsenic, and all the data say there’s simply not a health concern.”
3. Gulf Coast Fish

The Scare: Following the Deepwater Horizon oil spill in the Gulf of Mexico in April of 2010 — the worst oil spill disaster in the history of the United States — the Gulf region has been struggling to recover. Yet despite the fact that some of the strongest and most thorough screening procedures have been in place to ensure that the Gulf seafood sold to consumers is safe to eat, some activist groups argue that there are still toxic levels of certain chemicals in these foods.

Origin of the Scare: In October, the Natural Resources Defense Council (NRDC) came out with a report claiming that seafood from the Gulf Coast had dangerous levels of contaminants. According to the NRDC, levels of polycyclic aromatic hydrocarbons (PAHs) in seafood samples, which they tested and evaluated according to their own rubrics, were up to 10,000 times higher than what would be safe for vulnerable populations, such as pregnant women and children.

These activists claimed that the levels of PAHs in this seafood were high enough to cause cancer, and cited additional risks of high metal concentrations, including mercury, cadmium, and lead. NRDC also raised concerns about the dispersants that were used to break down the oil, which had never been used in such great quantities before, claiming that we cannot know what the health effects might be. However, the Environmental Protection Agency (EPA) had approved the use of these dispersants, and the Food and Drug Administration (FDA) had been consistently testing to ensure that Gulf seafood is free of these dispersants.

Media Coverage: One of the most destructive results of this unfounded scare is the effect it has had on the fragile Gulf economy. As people whose livelihoods depend on Gulf seafood are working to regain the confidence of consumers, fallout from a scare of this sort can cause a devastating setback.

The media picked up on the NRDC story, which provided scientific-sounding evidence for an argument that many others in the news were already making, whether through pictures of sick crabs or frightening headlines — that Gulf seafood was dangerous and contaminated. NRDC went ahead and filed a petition with the FDA, criticizing the agency for not doing enough to protect the health of pregnant women, children, and people who consume a lot of seafood.

The FDA responded to the NRDC’s pseudoscientific study, explaining that this group’s standards were inappropriate and created alarm around something that did not pose a risk to consumers. Through testing over 10,000 samples, the FDA consistently detected levels of PAHs that were 100 to 1,000 times below the level of concern — and even these levels of concern were determined using high estimates of people’s consumption and length of exposure. Basically, a person would have to eat over 1,000 jumbo shrimp or more than 100 oysters every day for five years before they would notice any harmful effect on their health.

But consumers still fell victim to the scare tactics used by NRDC and others, and have remained concerned. As of January 2011, almost 20 percent of consumers reported that they were still eating less fish as a result of the spill, according to market researcher Technomic. And a survey by GNO Inc. last spring reported that half of restaurant customers still had negative perceptions of Gulf seafood.
ACSH Response: As usual, ACSH is concerned about the unscientific claims promoted by the NRDC and the environment of fear that the organization creates. As ACSH's Dr. Gilbert Ross observes, “The NRDC couldn't care less about rebuilding the Gulf Coast's economy following the oil spill. They want to scare consumers and gain publicity and influence, all to the detriment of consumers, fishermen, and everyone whose livelihood depends on the industry.”

In December, Louisiana's two U.S. Senators, in accordance with ACSH's point of view, implored the FDA to be more aggressive and vocal in their statements that Gulf seafood is safe to eat, in order to reduce unfounded fears among the public. U.S. Senator Mary Landrieu signed the letter, stating that even though the FDA has declared the Gulf seafood safe, “some groups continue to spread misinformation and unscientific claims.”

Bottom Line: Unfounded claims about the dangers of Gulf seafood have unquestionably damaged the region's struggling economy. Robert Dickey of the FDA Gulf Coast Seafood Laboratory, chastising the NRDC's claims, reported that the group's alternative risk assessment “carries a risk of doing more harm than good.” Hopefully, the FDA will heed requests to make their safety declarations more pronounced, and consumers will begin to realize that it is safe to eat Gulf fish.

4. Hydraulic Fracturing, or “Fracking”

The Scare: Commonly referred to as “fracking,” hydraulic fracturing consists of using highly pressurized water, mixed with various chemicals, to break through shale rock formations in order to obtain natural gas. Though fracking has tremendous potential to create many thousands of jobs while providing a clean source of energy, environmental activists have mobilized to alarm and misinform the public about the possibility of groundwater contamination, even though the evidence does not support these claims.

Origin of the Scare: A report written in April by Representatives Henry A. Waxman of California, Edward J. Markey of Massachusetts, and Diana DeGette of Colorado, faulted gas and oil companies for, at times, “injecting fluids containing chemicals that they themselves cannot identify.” Commissioned by the House Energy and Commerce Committee, the report also alleged that 14 of the nation's most active hydraulic fracturing companies have used 866 million gallons of hydraulic fracturing products — not including water. More than 650 of these products, the report claimed, contained chemicals that are either known or possible human carcinogens, are regulated under the Safe Drinking Water Act, or are listed as hazardous air pollutants.

Media Coverage: Following the release of the House report, the notoriously alarmist New York Times reporter Ian Urbina began to devote himself to finding ways to upset readers about fracking. Among other claims, he asserted that chemicals used during natural gas extraction may ultimately end up in our drinking water. Urbina even cited a previous report by the equally alarmist Environmental Working Group, claiming that benzene levels in fracking ingredients were as much as 93 times higher than those found in diesel fuel.

Urbina was also responsible for an entire anti-fracking series in The Times called “Drilling
Down,” which examined the risks of natural gas drilling. In one of his pieces (“A Tainted Water Well, and Concern There May Be More”), Urbina accused energy companies of keeping instances of contaminated water wells hidden, especially from the Environmental Protection Agency (EPA). Yet such claims are unsubstantiated. In fact, numerous academic, federal, and state investigators have conducted extensive research on groundwater contamination issues and have found that drinking water contamination from fracking has not been documented, and its future occurrence is highly improbable.

Much of the current fracking controversy was spurred by the 2010 film “Gasland,” a documentary that criticizes the natural gas drilling process. One of the movie’s signature moments shows a Colorado landowner setting his tap water on fire, an improbable but dramatic scene that has further fueled anti-fracking sentiments. The film’s claims were so egregious, however, that the Colorado Oil and Gas Conservation Commission was compelled to set the record straight by publishing an information sheet that corrects the film’s misleading depictions.

A ACSH Perspective: Though environmental activists claim that fracking leads to the contamination of drinking water with chemicals such as benzene, ACSH’s Dr. Gilbert Ross contends that “carcinogenic effects associated with benzene come from studies of high-exposure occupational workers. This has little or nothing to do with the traces of benzene present in hydrofracking liquids, let alone the hypothetical amounts that might conceivably migrate from shale gas deposits to drinking water. To deny Americans the possibility of plentiful, cheap, and safe natural gas because of hyper-precautionary fears about ‘toxic and carcinogenic’ chemicals from hydrofracking fluid seems terribly irresponsible.”

Indeed, even New York Governor Andrew Cuomo sees the vast potential that fracking has: His administration took steps to overturn a hydraulic fracturing moratorium in June that would allow the process to continue on private lands, thus opening New York to one of the fastest-growing areas of the energy industry. The N.Y. State Department of Environmental Conservation is scheduled to release proposed rules governing fracking processes early in 2012.

A The Bottom Line: Hydraulic fracturing has real potential to become a vital source of energy that has the ability to create hundreds of thousands of jobs, which are especially necessary in our current economic slump. While fears of environmental degradation are hypothetical, and water contamination from fracking is highly unlikely, there is no doubt that this process can sustain our energy requirements while dramatically reducing our reliance on foreign oil and domestic coal, goals that the anti-fracking movement presumably favors. Perhaps the anti-fracking activists should consider the damage that results from avoiding fracking — more pollution from, and reliance upon, foreign oil.

Simply put, hydraulic fracturing has been safely used in oil and gas production for the past 60 years; to ban it now would be an economically and scientifically imprudent decision. Even President Barack Obama’s EPA administrator, Lisa Jackson, admitted at a U.S. House Oversight Committee hearing in May that the environmental risk of hydraulic fracturing is practically nonexistent: “I’m not aware of any proven case where the fracking process itself has affected water, although there are investigations ongoing,” she said.
5. Sunscreen

The Scare: Everyone knows that sunscreens are important for protecting against damage from the sun and preventing skin cancer. But some groups are spreading fear about this important component of skin care, claiming that certain substances in sunscreens are dangerous, that they actually promote cancer and disrupt the body’s hormones.

Origin of the Scare: There have always been those who dislike the concept of using any chemical that they don’t consider “natural.” Celebrity supermodel Gisele Bündchen, for instance, has called sunscreen “poison.”

In May of 2011, the Environmental Working Group (EWG) echoed these sentiments, and released a report alleging that a majority of sunscreens are unfit for use. Not only did the activist group claim that there is “no consensus on whether sunscreens prevent cancer,” but they also reported that certain chemicals in sunscreens can release free radicals, disrupt hormones, and even increase the rate of skin cancer. EWG came down particularly hard on sunscreens containing vitamin A (retinyl palmitate), which they claimed promoted skin cancer, as well as other ingredients, such as oxybenzone or 4-MBC, that they called “hormone disruptors.”

Media Coverage: News articles on the “dangers” of sunscreen use appeared soon after, citing the EWG report. The EWG also sent a letter to Food and Drug Administration (FDA) Commissioner Dr. Margaret Hamburg, pressing the agency to pass new sunscreen regulations.

Of course, dermatology experts quickly moved to refute EWG’s allegations, all too aware of the potentially dangerous consequences that would result if people decided to forego sunscreen in the mistaken belief that it’s hazardous. Dr. Robert Brodell, president of the American Board of Dermatology, reported that “the weight of the evidence strongly favors routine use of sunscreens, whether chemical or physical.”

ACSH Perspective: ACSH’s Dr. Elizabeth Whelan observes, “Their claims are enhanced by the fact that there’s general confusion about what level of protection is best, and for whom.” She adds that she is dismayed by these activists’ anti-chemical stance, observing that they “take on so-called ‘endocrine disruptors’ and other chemicals they don’t like — meaning all chemicals.”

For one thing, the vitamin A studies to which EWG refers were conducted only on mice that were already much more susceptible to skin cancer than humans. Furthermore, these mice received a plain vitamin A cream without sunscreen, making it especially problematic to assume that these findings are applicable to human sunscreen use. A spokesperson from the FDA confirmed that “it is premature to draw conclusions from the study at this time.”

And what about the “hormone disruptors?” This claim was also based on studies in mice, in which they were fed large quantities of oxybenzone, much larger amounts than a person who uses sunscreen would ever be exposed to. Other studies have found no hormonal changes in humans applying oxybenzone-containing sunscreens.

Bottom Line: Keep applying sunscreen. Skin cancer is the most common cancer in the U.S.,
with one to two million cases diagnosed each year. What’s more, a June study published in the *Journal of the American Medical Association* reported [31] that, in a randomized controlled trial, participants who applied sunscreen regularly were 73 percent less likely to develop invasive melanoma, the deadliest form of skin cancer. Sunscreen scares serve only to endanger the health of the population.

6. Fluoridated Water

**The Scare:** Ever since the practice of adding fluoride to community water supplies began in the 1940s, controversy has surrounded this practice. Fluoride helps to prevent cavities and tooth decay by minimizing the loss of minerals from tooth enamel, promoting remineralization, and discouraging acid erosion of the tooth. Nearly three quarters of the country’s population receives fluoridated water. But opponents of this practice claim that fluoridated water is associated with health risks, ranging from cancer to heart disease to bone fractures.

**Origin of the Scare:** The initial fluoride scare began soon after the start of this practice. The anti-fluoride movement was originally led by conspiracy theorists, such as those in the radical John Birch Society, whose arguments included claims that fluoridation was a communist plot to poison the country’s population, and references to the Nazis’ supposed use of the substance to pacify concentration camp prisoners.

Modern-day opponents [32] of fluoridation have (for the most part) moved past such wild theories — but they’re still distrustful. Some opponents claim that the risks of fluoridation outweigh the benefits; they believe that individuals get enough fluoride from other sources, such as toothpaste and mouthwash, and thus don’t require additional fluoride in public water supplies. Others simply don’t agree that governments should dictate what people ingest via their water, and consider fluoridation of public water supplies a violation of their rights.

**Media Coverage:** Back in January, the federal government decided to reduce the recommended threshold [33] for fluoride in drinking water to 0.7 milligrams per liter, down from the previous standard of 0.7 to 1.2 milligrams per liter. Their reasoning was that this lower level would still provide protection against cavities, while decreasing the risk of fluorosis. Fluorosis is a mainly cosmetic problem — white or yellow spots or streaks on the teeth — that can result from fluoride exposure.

Yet 2011 continued a four-year exodus of communities from the ranks of those that fluoridate their water. Over the past four years, about 200 jurisdictions across the country have stopped fluoridating their water. Pinellas County in Florida voted to end the practice in October, citing budget constraints and uncertainty about health risks [34]. Many other towns, such as Amesbury, Massachusetts, have followed their lead.

Countless experts have opposed such measures. As a Pinellas County commissioner, Kenneth T. Welch, commented, “Political rhetoric won out over science and the best advice of our medical and dental community.” The American Dental Hygienists’ Association, for instance, reports that recent estimates show that water fluoridation can reduce tooth decay by up to 40 percent [35]. And the
American Academy of Pediatric Dentistry reports that the only real negative effect of water fluoridation is the possibility of fluorosis, which is usually very mild and nothing more than a cosmetic issue.\(^{[36]}\)

**ACSH Perspective:** A 2002 ACSH publication entitled “Fillings, Fluoride, and Fear,” by dentist and ACSH advisor Dr. John Dodes, argues that water fluoridation is safe and important to dental health. Dr. Dodes reported on studies that have demonstrated that communities with water fluoridation experience lower levels of cavities among both children and adults.

Furthermore, the arguments that tie water fluoridation to a whole host of health risks have little substance. Most of the studies that these arguments are based on involve either human exposure to much higher levels of fluoride than the U.S. standards, or animal studies in which the lab animals received extremely high doses of fluoride — neither of which is representative of how the U.S. population will respond to our low levels of fluoride in water. As Dr. Dodes writes, “Fluoride intake at 1 ppm has never been shown to have any negative effect on disease or death rates.”

ACSH's Dr. Gilbert Ross, too, has criticized movements across the U.S. that call for an end to water fluoridation. These regulations are “penny-wise and pound foolish,” he says, “since fluoridating water has proven to be effective and will save money in the long run.”

**Bottom Line:** The CDC has named fluoridated water one of the top 10 public health achievements of the twentieth century.\(^{[37]}\) Given that many people in the U.S. are unable to afford dental care, water fluoridation provides tooth decay prevention to all residents without discrimination. As Dr. William Calnon, president of the American Dental Association, observed in response\(^{[38]}\) to reports of communities abandoning water fluoridation, “Not long ago, most people lost their teeth by middle age. But today, thanks in large part to water fluoridation, more people are keeping their teeth throughout their lifetimes... At an average yearly cost of 50 cents to $3 a person, community water fluoridation is one of the few public health measures that save more money than they cost. That’s something we can all smile about!”

**7. Cell Phones**

**The Scare:** Cell phones emit a form of non-ionizing radiation that can be absorbed by tissues closest to the source. Some people believe that radiation from cell phones can cause brain cancer; these alarmists warn others to reduce exposure to this supposedly cancer-causing agent by using hands-free devices or texting.

**Origin of the Scare:** The real beginning of this scare occurred back in 1993, when a man from Florida filed a claim against the manufacturers of his wife’s cell phone.\(^{[39]}\) This claim, the first of its kind to propose that cell phones cause cancer, reported that it was the cell phone that had given his wife cancer in the same shape as the phone’s antenna. Since then, numerous studies have been conducted on this topic, almost all providing no evidence linking cell phone use to brain cancer.

Then, in late May of 2011, the International Agency for Research on Cancer (IARC), part of the World Health Organization, classified cell phones as “possibly carcinogenic,”\(^{[40]}\) reviving fears
among the public that cell phones are dangerous to their health.

**Media Coverage:** The media was quick to pick up the IARC’s cell phone classification. Many reported on the dangers of using cell phones, spreading alarm among the over 300 million cell phone subscribers in the U.S. Other, more responsible news sources, took issue with this interpretation, pointing out that the category of “possibly carcinogenic” substances also includes coffee and pickled vegetables. These sources noted that the research used to back up the IARC’s claim was questionable and inconclusive.

When other organizations, including the American Cancer Society, the U.S. Food and Drug Administration (FDA) and the U.S. Centers for Disease Control and Prevention (CDC), concluded that the scientific evidence does not support a link between cell phones and brain cancer, there was little media attention.

The study on which the IARC recommendation is based — the Swedish Interphone Study, which was published in the International Journal of Epidemiology — showed no overall increase in brain cancer incidence among people who used cell phones. And the only instance where they did find any relationship — a slight increase in the risk of glioma, a rare type of brain cancer, among especially heavy cell phone users — was undermined by the fact that many of these high users reported improbable levels of cell phone use, up to 12 hours a day. Since the measurements of participants’ cell phone use relied on their own memories, recall bias could have easily been the cause of this weak association: People who developed gliomas, looking for a cause for this incredibly rare disease, may have misremembered their cell phone use as higher than it was.

Yet the European Environmental Agency, ignoring these factors that may have affected the accuracy of the results, went on to report that cell phones could be as much of a risk to public health as asbestos, smoking, and leaded gasoline.

**ACSH Perspective:** As ACSH’s Dr. Gilbert Ross points out, “There’s no biological hypothesis to explain how cell phone radiation might cause cancer.” Indeed, cancer-causing agents generally work by altering DNA, and cell phone radiation cannot do this. Unlike ionizing radiation, such as x-rays, radon, and cosmic rays — which are known to affect DNA and cause cancer — the cell phone radiofrequency energy is non-ionizing, and its only known biological effect is heating.

As ACSH’s Dr. Elizabeth Whelan observed that June, “This is a story that causes unnecessary anxiety.”

**Bottom Line:** The vast majority of studies show that there is no link between cell phones and brain cancer. As cell phones have become increasingly popular over recent years, and usage has soared from zero to over 300 million, the NCI’s Surveillance, Epidemiology, and End Results (SEER) Program has found no increase in the rates of brain cancer in the U.S. between 1987 and 2007. The failure of any reliable human study to show a significantly higher risk of brain cancer associated with cell phone use, or of any animal study to show that exposure to cell phone radiation increases cancer rates or facilitates the progression of cancer, suggests that this theory is baseless. Further studies are underway; these will involve large sample sizes and sound scientific methods that do not rely on the highly fallible memories of participants — including the COSMOS and Mobi-Kids studies, which will track the effects of cell phones on children and adults.
over lengthy periods of time. Hopefully, these studies will put this cell phone scare to rest.

8. Genetically Modified Fish

The Scare: Fifteen years ago, the company AquaBounty first submitted for FDA approval its genetically modified (GM) salmon, which grows twice as fast as conventional farmed salmon. Ever since, the concept of genetically modified fish for consumption has been mired in controversy. Today, the fish has still not won full approval for commercial production. Opponents claim that risks from this fish include possible harm to human health, as well as damage to the ecosystem and interference with local fishing economies.

Origin of the Scare: For as long as agricultural societies have existed, humans have modified the genetic compositions of plants and animals through selective breeding. New technologies allow us to complete this process much more efficiently, by directly modifying selected genes in plants and animals in a process known as genetic engineering. Despite an impressive record of over 15 years of safe production and consumption of a range of genetically engineered crops, many activists protest all types of genetically engineered food, reserving their most vehement complaints for GM animal products.

The AquaBounty salmon is an Atlantic salmon that contains genes from the Chinook salmon and ocean pout that allow for its growth hormone gene to be continually activated. This causes the fish to grow twice as quickly as conventional salmon, although the adult GM salmon is the same size as its conventional counterpart. Those opposed to the AquaBounty salmon claim that it may cause health problems and lead to more allergic reactions in consumers, and that it could damage the wild salmon population by interbreeding with and outcompeting these fish if it were released into the wild.

Media Coverage: In June, the House voted to bar the FDA from approving any GM salmon. This amendment, proposed by Representatives Don Young of Alaska and Lynn Woolsey of California, would prohibit the FDA from spending money to approve AquaBounty's application. Using language sure to frighten the public, Young said, “Frankenfish is uncertain and unnecessary.” Then, in agreement with this movement by the House, a group of eight senators in July threatened to push to remove the FDA’s funding for studying GM fish if the agency did not abandon the salmon approval process.

Despite the “Frankenfish” fear-mongering, the FDA stayed the course and, in October, submitted its support for the AquaBounty salmon's commercial production. This leaves only the White House’s Office of Management and Budget as the last step before final approval.
The FDA maintained that the AquaBounty salmon is entirely safe for consumption [48]. The altered DNA itself does not make the fish unsafe to eat, and, in terms of allergy concerns, people who are allergic to fish are likely to avoid this salmon anyway. As Dr. Craig Altier, a member of the FDA's advisory panel on this subject, states, “Exhaustive analysis by the FDA showed no difference from conventional salmon.” Furthermore, he continues, “The growth hormone itself presents no specific risk, as we consume growth hormone in all the meats we eat.”

And what about the risk that these GM salmon will interfere with wild salmon populations? The FDA insists that this risk is infinitesimally small: Almost all of the AquaBounty fish will be sterile females and, given their high energy needs, they would be unlikely to even survive in the wild. To add to these precautions, the AquaBounty salmon will be kept in inland tanks, from which escape to the ocean would be next to impossible.

ACSH Perspective: As ACSH's Dr. Josh Bloom has observed [49], these policy-makers are pushing against GM salmon “for economic, not scientific reasons. It serves the interests of Alaska at the expense of everyone else.” Indeed, ACSH's Dr. Elizabeth Whelan points out that this fast-growing salmon could help lower the cost of this highly nutritious food, which contains a significant amount of lean protein, fatty acids, and vitamin B12 — an important benefit for those who struggle to afford a healthful diet.

All of the available data indicate that the AquaBounty salmon is safe for consumers and for the environment. While foods that are developed through traditional means of selective breeding are rarely evaluated rigorously before they enter the market, GM salmon has undergone an extensive evaluation. An ACSH publication titled “Studies Indicate GM Crops are Safer and Healthier” [50] (2007) provides thorough background information on the safety and importance of GM foods to the global food market.

Bottom Line: In a world that will add between 1 and 3 billion people to its population in the next half century, we need to find safe and sustainable ways to nourish this growing community [51]. A faster-growing salmon, which would also relieve pressure on fish farms that can actually pose dangers to the environment through waste and escaped fish, could provide an important step along this path. And unless these fish somehow sprout feet and walk from their inland tanks to the ocean, the risk to wild populations is minimal.

9. Fragrances

The Scare: Although fragrances have been safely used for centuries to create the pleasant aroma of perfumes, colognes, and countless other products, some activists are claiming that there is a danger lurking in these scents. Certain groups have urged the public to avoid such fragrances, saying they can contain irritants, allergens, hormone disruptors, and toxic chemicals that cause everything from reproductive problems to cancer to neurological disorders.

Origin of the Scare: Although products in the U.S. are not required to list the exact fragrance ingredients they contain, a list of almost all compounds that are used as fragrances in consumer products — 3,194 ingredients in all — is publicly available from International Fragrance
Association (IFRA). Despite this, advocacy groups are clamoring to require manufacturers to list their products’ exact ingredients, claiming that a large number of fragrances are a danger to health. Following this line of reasoning, in June, a new version of the Safe Cosmetics Act returned to Congress, calling for increased regulation of cosmetic ingredients, including the listing of all ingredients in these products.

Then, in October, the group Breast Cancer Action, notorious for frightening women by finding health dangers in harmless everyday products, alleged that the “Promise Me” perfume, created by the organization Susan G. Komen for the Cure, contained carcinogenic chemicals. Further attacks on fragrances came along later in the year, with Dr. Philip Landrigan, director of the Children’s Environmental Health Center at Mount Sinai Hospital, advising consumers to protect their health by avoiding any product that has “fragrance” in its ingredient list. According to Dr. Landrigan, exposure to chemicals in these products can “produce profound and lasting effects on the human body.”

Even scented dryer sheets were the subject of a fragrance scare — Dr. Anne Steinemann of the University of Washington claimed that certain chemicals, specifically benzene and acetaldehyde, are emitted from these dryer sheets and can cause cancer.

Media Coverage: Media reports quickly popped up, citing the dangers of toxic chemicals in fragrances. Headlines — such as one from the New York Daily News that included a report on Dr. Landrigan’s claims (“Toxins in plastics, meats can harm child health: experts”) — implied that scientific expertise lay behind these scares.

In response to Breast Cancer Action’s claims, Komen reported that their own scientists and health teams had tested all of the perfume’s ingredients and found them to be safe. But this organization still bent to the will of the alarmists and agreed to reformulate the perfume anyway, giving unwarranted credence to Breast Cancer Action’s scare tactics.

Angela Logomasini of the Competitive Enterprise Institute came forward to support the safety of fragrances, reminding readers that, although an irritant or allergen may sound frightening, “some people are also allergic or sensitive to flowers or peanuts.” Furthermore, she noted that, “There isn’t any compelling evidence that such scents at low doses found in consumer products have serious adverse human impacts... And again, trace exposures to fragrances or other chemicals are unlikely to have any hormonal effects on humans because both the doses and potency are too low.”

ACSH Perspective: ACSH’s Dr. Josh Bloom has also responded to fragrance and other chemical scares. “Many of these chemicals are present in our air, food, and water without any evidence of harm,” he says. “I wonder why these groups need to cry wolf day after day. You’d think the public and the media would have grown weary of them by now.”

Unfortunately, the continuation of these scares demonstrates that at least the media and activists have not grown tired of generating fear around products that have been used safely for decades. But contrary to their arguments, just because a chemical is present in a product does not mean that using the product is dangerous. As Dr. Bloom stated in response to the scented dryer sheet scare, “Unless we have an indication of the amount of each chemical detected, this ‘research’ is
absolutely meaningless. Benzene is found in gasoline, and acetaldehyde is formed in your liver after you drink alcohol. While it is true that, in sufficient quantities, both chemicals are toxic, the few molecules Dr. Steinemann is sniffing around for amount to an absurd waste of time.”

In fact, the group Breast Cancer Action, architects of the perfume scare, is on last year’s ACSH list of “toxic” breast cancer organizations — organizations that ignore science and needlessly scare women about chemicals that pose no danger to them.

**Bottom Line:** There is no evidence that exposure to the chemicals in fragrances is harmful. In recent years, cancer rates have been declining, despite our continued use of these products — a clear contradiction to the claim that toxic chemicals in fragrances cause cancer and harm human health. The fact that fragrances are ubiquitous in products that we all use, and have been using for many years without evidence of any harm to our health, suggests that there are more important health risks to worry about.

**10. Phthalates**

**The Scare:** Year in and year out, alarmist environmental groups target phthalates — a class of chemicals used to soften plastics — as the cause of cancer, obesity, and other adverse health effects. But in fact, phthalates have been responsible for the development of many lifesaving products, including flexible medical tubing, catheters, and blood storage bags. In addition, these innocuous chemicals are found in everyday products such as shower curtains, hair sprays, body lotions, shampoos, and various other personal care products. Despite phthalates’ proven safety record, numerous alarmist articles continue to appear in the news media, attacking these chemicals and needlessly scaring the public into believing they are so-called “endocrine disruptors” that can lead to developmental abnormalities.

**Origin of the Scare:** A study published in January in the journal *Reproductive Toxicology* alleged that exposure to DINP, a specific type of phthalate, led to developmental abnormalities in rats. After injecting rodents with phthalate levels that were from 300 to 90,000 times greater than the exposure level found in humans, a group of Danish researchers found some evidence that male rats born to mothers who received DINP injections exhibited irregular sperm and testicular development. In addition, the male rats showed differences in the size and shape of their genitalia, which the authors interpreted as evidence that DINP can interfere with normal androgenic hormone activity.

**Media Coverage:** Shortly after the study was published, an article posted on the *Mother Nature Network* also attacked DINP, claiming that it presents a particular health risk to children. Contrary to the message in the article, however, decades of widespread safe use and epidemiological research has found that typical environmental exposure to these compounds is not harmful to anyone, of any age.

Another study, published in the *Weekly Epidemiological Bulletin* in June, alleged that infants delivered via Cesarean section or with the aid of forceps are at risk of phthalate “contamination.” Phthalates from medical equipment are present in higher concentrations in women who do not
give birth naturally, the authors noted, which they believe is dangerous because these are “endocrine disruptors” that can affect child development and reproduction.

And, predictably, the activist organization Public Interest Research Group (PIRG) released yet another iteration of their annual “Trouble in Toyland” report [66], which warned parents to stay away from certain toys with “excessive” phthalate levels.

**ACSH Perspective:** The Centers for Disease Control and Prevention (CDC) did a bio-monitoring study and found that the general public’s exposure to phthalates is at levels deemed safe by regulatory agencies. In addition, in 1999 and 2000, ACSH conducted a Blue Ribbon Panel Report on the effect of two phthalate plasticizers – DEHP and DINP — used in medical devices and toys. The scientific evaluation, led by former Surgeon General C. Everett Koop, found that exposure to DEHP is not harmful, and that DINP used in children’s products is safe for its intended use. An updated report on the same subject in 2008 found no reliable evidence to contradict the earlier evaluation.

“Such politically-generated attacks are aimed at pressuring lawmakers and regulators into unscientific restrictions, and even bans, of plastic products in general use which, in turn, can cause harmful unintended consequences,” says ACSH’s Dr. Elizabeth Whelan.

And as far as extrapolating data from studies conducted in rats is concerned, ACSH’s Dr. Josh Bloom says the conclusions are not valid: “Even if you could assume a one-to-one correspondence between rats and humans, you would have to eat 14 pounds of phthalates per day to match the highest dose given to the rodents,” he explains [67].

Indeed, in a 2009 study, Dr. Richard Sharpe, an endocrinologist at the University of Edinburgh, analyzed phthalate exposure in monkeys — an animal far more closely related to humans than rats — and found absolutely no effect on health or development [68].

**The Bottom Line:** Even after obtaining the stamp of approval from numerous, well-respected governmental scientific bodies, phthalates continue to be the target of anti-chemical activist propaganda. Though not surprised by these ceaseless attacks, ACSH is troubled by the great number of news media outlets that publish these pseudoscientific studies. Phthalates are safe. Period.