

The Food Lottery

By Ronda Behnke ND, CHomP

Are you an average adult American? If so, then you consume 70 pounds of beef, 60 pounds of pork, and 550 pounds of dairy (love that ice cream). Americans feel safe eating because they know the foods they eat have been monitored by the United States Department of Agriculture (USDA) and the Food and Drug Administration (FDA).

But, how safe is our food industry really? Do the USDA and FDA really monitor our food for quality and safety? Is there anything to fear?

When I was contracted to write an article about foodborne illnesses (illnesses that come directly from eating food), I discovered that illness directly related to food come in all shapes and sizes. In 2005, the Centers for Disease Control and Prevention (CDC) estimated there are more than 200 foodborne illnesses, from allergies to “stomach flu” to vomiting; the CDC have identified 30 pathogens associated with these foodborne illnesses, classified as bacteria, virus, chemical, parasitic, prions, antibiotic residues, genetic modifications, or unknown. In fact, the CDC estimated the average adult American consumes 10 pounds of additives each year, pathogens included!

And any one of these pathogens could cause or lead to illness, disability or death.

Caroline Smith DeWaal, director of food safety at the Center for Science in the Public Interest stated “Consumers play a lottery every day they eat.” But it isn’t just *E. coli* and *Salmonella* that cause illnesses to occur. Sure, they cause the classical signs of stomach and digestive distress, but what about those illnesses that occur down the road from eating foods? What about antibiotic resistance or allergies? These too are now being considered foodborne illnesses.

The CDC stated that foodborne illnesses cause 9,000 American deaths annually, 81 million are sickened, and 325,000 require hospitalization. The long-term effects of some food-borne contaminants are still being studied by the CDC; these effects are cancer, paralysis, and disability.

As many illnesses are now being considered “food-borne” because they began with food, this article looks at the “traditional” foodborne illnesses (i.e. parasites, bacteria, viruses), genetically modified foods, hormones

and irradiation. Each needs to be examined for its impact on health, as the building blocks to health begin with what we put in our mouths.

Food Poisoning (previously considered as “Foodborne Illnesses”)

Foodborne illnesses used to be considered as illnesses caused by eating food contaminated with a bacteria, virus or parasite. The majority of the time the symptoms are digestive: diarrhea and vomiting are the two main symptoms. Each year, hundreds of millions become sickened worldwide.

The two most common pathogens (illness-causing substances) are *E. coli* and *Salmonella*, with *Salmonella* being the leader in causing deaths from foodborne illness. *E. coli* in itself is considered harmless because it exists in human and animal digestive tracts; however, when too much *E. coli* enters the body through ingesting it, illnesses can occur. Most cases of *E. coli* do not harm a person long-term; however there is one *E. coli* that can lead to disability and death: *E. coli* O157:H7. Approximately 3% of the deaths from foodborne illnesses occur from having this deadly form of *E. coli*.

Most cases of foodborne illnesses are mild, so people attribute the symptoms to being the “stomach flu.” Plus, people rarely make the connection between their symptoms and food from two days prior. Most cases of foodborne illness do not occur shortly after eating.

The USDA states that foodborne illnesses are primarily caused by improper food handling, storage, and preparation. However, Robert A. Robinson, associate director of food and agricultural issues at the Resources, Community & Economic Development Division of the USDA, in a statement to the House of Representatives Subcommittee on Human Resources & Intergovernmental Relations on May 23rd, 1996, stated that experts agree that, in many cases, the pathogens were present at the processing stage, i.e. before the food reached the cook’s hands. Despite the new methods of destroying bacteria, viruses and parasites, the incidences of foodborne illnesses have increased over the past 20 years, and the pathogens have become more deadly, as incidences of hospitalizations and deaths have also increased.

Over the past 20 years, genetic modifications, irradiation of foods, and the use of antibiotics and pesticides have not decreased the incidences of foodborne illnesses. Why?

According to Mr. Robinson in his address to the House of Representatives, six reasons can be considered aside from undercooking or otherwise mishandling of food:

1. Food supply is changing in ways that promote foodborne illnesses: ex: large numbers of animals herded together; broad distribution, so contaminated food can reach more people in more locations.
2. Demographics: certain people are more at risk for foodborne illnesses: those with suppressed immune systems, children in group daycare, and the elderly.
3. Three of the four most common pathogens the CDC consider most important were unrecognized as causes of foodborne illnesses 20 years ago: *Camphylobacter*, *Listeria*, and *E. coli O157:H7*.
4. Bacteria already recognized as sources of foodborne illnesses have found new modes of transmission: ex: *E. coli O157:H7* previously found only in uncooked hamburger is now being found in other foods such as salami, raw milk, apple cider, and lettuce.

5. Some pathogens are far more resistant than expected with long-standing food-processing and storage techniques: ex: *Yersinia* and *Listeria* can continue to grow in food under refrigeration.
6. According to the CDC, virulent strains of well-known bacteria have continued to emerge: ex: *E. coli* O104:H21 is another new potentially deadly strain of *E. coli*.

The two government agencies that monitor food quality in the United States are the USDA (monitors meat, poultry and eggs) and the FDA (monitors everything else). Because of the vastness of the food processing industry, only 2% of the annually estimated 5 million shipments of food are inspected; but still, all commercialized food bears a label as being inspected by either the USDA or FDA. Unsurprisingly, perhaps, 2/3 of all outbreaks of foodborne illnesses are from FDA- or USDA-regulated foods.

The commercialized beef and poultry industries blame the organic farmers for the increased incidences of foodborne illnesses and the enhanced virulence of the pathogens, stating that organic farmers use cow manure as fertilization instead of chemical fertilizers, and they do not use antibiotics on their cows and chickens. Mr. Robinson believes the

increase in incidences of illness was directly related to the commercialized slaughtering and processing of meats. In the larger commercialized farms, cows, for example, are cared for through automation. The milking is done by machine, the feeding is automated, and distribution of antibiotics is automated. When the cow reaches the factory for slaughter, it too is automated, and severely dirty with cow manure that finds its way into the meat that is processed. The meat from one “bad” or contaminated cow can be mixed into many pounds of meat, and distributed across the United States.

With organic farming, very little is automated. Mr. Robinson did not state any concern about the organic farming industry as being a contributor to foodborne illnesses. All fingers were pointed at commercialized industries.

Genetically-Modified Foods

Genetically-modified foods are called a variety of names: transgenic crops, hybrid crops, GE (Genetically Engineered), GMOs (Genetically Modified Organisms), Frankenfoods, or GM (Genetically Modified), to name several of the more common names. No matter the name, the premise behind them is the same: Genetic engineering makes it possible

to mix genetic material from one species into another species, thereby giving the altered species traits it would normally not possess. For example, taking genetic material from a fish and inserting it into corn, thereby giving corn some of the characteristics of the fish.

At this time, more than 60 genetically modified crops have been approved by the United States for human consumption and feed for animals. Eighty percent of the GE crops are modified to resist pesticide and herbicides that would normally kill them and, to resist pests such as insects or worms; the balance are tailored to either increase or decrease growing/ripening time. As of 2005, the GE crops currently approved for planting and consumption in the US are varieties of alfalfa, canola, corn, cotton, flax, papaya, potatoes, radicchio, rice, soybean, sugar beets, tobacco, tomatoes, and yellow crookneck squash.

Genetic modifying of crops was first introduced in 1997 as a way to increase farmer profit, decrease pesticide use, increase convenience, and support hunger throughout the world. In proposed estimates, for example, GE soy, corn and cotton would decrease insecticide and herbicide sprays by over 8 million pounds/year. They also were estimated to decrease the death of farmers who die from these sprays by 75%. Work hours, gas use,

and water use are also estimated to decrease, along with the decrease in soil erosion due to the decrease in tillage.

Although the concept of genetic modified crops looks beneficial to the farmers as well as consumers, studies have concluded that the public does not support genetic engineering. Consumer polls by the USDA repeatedly show that 80-95% of Americans want GE foods to be labeled—**so they could avoid buying them.**

It isn't just the American population that is averse to GE foods. Aside from the U.S., Canada, China and Argentina, no other country allows GE foods, making it impossible for these four countries to export their GE crops and foods. Charles Margulis of The Center for Food Safety, and Michael Hansen, senior scientist of The Consumers Union, stated that some African nations have even refused GE crops in the form of food aid. As Margulis said, "Even people who are hungry don't want to be used as guinea pigs."

To date, the U.S. government does not make it mandatory to label foods that are genetically engineered, leaving consumers to wonder if their foods have GE ingredients. Surprisingly, lab tests and industry disclosures

indicate that 60-75% of all non-organic supermarket foods now “test positive” for the presence of GE ingredients, with 60-70% of corn, soy, canola and/or cottonseed being genetically modified. Some products in themselves, such as corn and “vine ripened” tomatoes have been genetically modified.

So where does this leave the consumer?

There are several troubling things that have been discovered through the use of genetically engineered crops. Scientists have warned that GE foods may set off allergies, increase cancer risks, produce antibiotic-resistant pathogens, damage food quality, and produce dangerous toxins.

Consider the way the crops are modified: genetic material from one organism is taken and forcibly injected into a DNA strand of the crop seed. The new piece of code is tagged with an antibiotic-resistant code, which is used to test which seeds are viable and which are not. Once the procedure is done, antibiotics are used to see which seeds are viable (able to be used) and which are not (they die). The viable seeds are planted, and the plants that result have antibiotic-resistant DNA. The

medical community is having difficulty treating infections due to the prevalence of antibiotic resistant bacteria.

Another problem that is now being seen is allergies to foods where a person hadn't been allergic before. When the strand of genetic code is inserted into a seed, the abilities, and contaminants, of the genetic strand go along with it. This includes viruses and allergens. Nut DNA inserted into tomatoes can now elicit an allergy in a person eating the tomato who is allergic to nuts. The British Medical Association has called for a global ban on GE foods, while the *New England Journal of Medicine* has warned, "the allergic potential of these newly introduced microbial proteins is uncertain, unpredictable, and untestable."

Also, as mentioned, viruses are transmitted through genetic engineering. Eating GE crops may transmit the virus to the consumer, and the virus may have new properties it didn't have before being genetically modified. The virus may now be more deadly.

As for the farmer, GE crops didn't help them as planned. Studies have found that herbicide use has increased because some of the GE crops themselves wouldn't die with herbicide use, so more toxic and stronger

herbicides needed to be used to kill the GE crops. With the use of these more toxic and stronger herbicides, farmer profit has decreased, and the ingestion of more toxins has increased for animals and humans.

Also, field contamination can occur, where GE seeds are transferred to a non-GE farm by the wind or birds, and the farmer of the contaminated field is held responsible. One farmer in Canada is being sued for patent infringement for having GE crops growing in his field when a GE field contaminated his. For organic farmers, they would lose their organic status if this occurred. The farmer is responsible for his field, no matter what gets planted there by “others.”

For consumers wanting to avoid GE foods, it is best to buy organic or buy local. Some products also bear the label “non-GE” or “non-GMO”; these are not supposed to have GE ingredients.

Hormones

One of the most common genetic modifications is recombinant Bovine Growth Hormone (rBGH), which is designed to increase milk production in dairy cows. Currently, 10-30% of cows are injected with rBGH.

Consumers protested the use of rBGH in their milk, causing the dairy industry to remove the labeling from milk cartons, but not to stop using the hormone. rBGH has been banned in every other industrialized nation of the world, leaving the United States as the largest producer of cattle injected with this growth hormone. Although the hormone is designed to increase milk production, millions of gallons of milk are destroyed daily as the purchasing of this modified milk is avoided by consumers, and other countries have banned importing.

Studies in Europe and Canada have determined that rBGH is linked to increased risk for cancer and antibiotic resistance. Approximately 79% of cows treated with rBGH develop udder infections, requiring additional antibiotics to be given. Antibiotics from cows treated with rBGH have also been found in milk, as has pus that went into the milk from infected utters. Plus, the CDC has recently warned that 16% of all U.S. meat contained potentially dangerous antibiotic resistant bacteria.

Since all commercially-raised cattle are given antibiotics, and the majority (90%) are given hormones of some form, consumers must look to organic

sources for their beef, milk, and dairy products to avoid antibiotics and hormones from cow sources.

Irradiation

Irradiation of food was researched for the past three decades ever since it was discovered that radiation killed the parasite *Trichonella* in pork. Since that time, irradiation has been used in an effort to decrease the number of foodborne illnesses, increase shelf life, preserve food quality and make more food available at a more reasonable cost. Legally defined as an additive, irradiation has now been approved for use on more than 100 foods, and is being used in 52 countries throughout the world.

Irradiation involves treating food with high doses of ionizing gamma radiation. This radiation is different from microwaves, as it is not designed to heat food, but to destroy pathogens such as bacteria and parasites, destroy sprouting enzymes in potatoes, delay ripening, and kill infestations from insects.

The amount of radiation used depends upon the intention. For example, 15,000 rads are needed to kill the sprouting enzymes in potatoes whereas

3 million are needed to kill bacteria in meats. How does this compare to medical x-rays? A chest x-ray, for example, requires 0.5 rads. This is considerably less than what is being used on food.

With hundreds of millions of people worldwide succumbing to a foodborne illness each year, the FDA felt that irradiating foods that contain the common sources of pathogens (such as beef and chicken) would decrease the number of foodborne illnesses. Irradiating food was shown to kill the number of illness-causing pathogens in meat, for example, and it was touted to not affect taste or nutritional value of the food.

However, several studies have indicated that radiation levels over 100,000 rads destroyed vitamin C, B1, B2, B6, A, E, and K, as well as amino acids (the building blocks of protein) within the food. At doses of 7.5 million rads, trace minerals in food (potassium, magnesium, nickel, etc) can become radioactive, according to the FDA. The FDA claims that the radioactivity is short-lived however.

Dr. Joseph Barna performed a study for the Hungarian Government in 1979; in his findings, irradiated foods produced 185 beneficial effects, and 1,414 harmful effects. Plus, irradiation of food did not ensure that the food

was uncontaminated with foodborne pathogens; some parasites, bacteria and viruses survived.

Many other studies have been done to confirm that irradiated food is safe to eat. Animals fed irradiated food have shorter lifespans, have increased rate of infertility, lose weight quickly, and developed nervous system disorders, organ damage, cancer, tumors, and kidney disease.

Malnourished children developed abnormal blood cells called *polyploids*, which are linked to leukemia. Other tests involving humans led to human subjects developing internal bleeding, chromosomal disorders, cancer, organ damage, stillbirths, and fetal anomalies.

Today, there are many less-invasive ways to process and handle foods that can accomplish the same benefits for foods, and are considered less harmful to the public. For example, FDA Commissioner Lester Crawford, speaking to the International Congress on Meat Science and Technology on August 8, 2004, said that the risk of food-borne illnesses in shellfish can be substantially reduced by cutting the time from harvest to refrigeration or freezing and using high pressure or mild heating. Crawford said, "85 to 90 percent of illnesses in the United States could be

eliminated if the product were iced within four hours or refrigerated within one hour of harvest.”

The FDA does not require labeling of irradiated ingredients in foods, but does require it for whole foods that have been irradiated. The flower symbol “radura” is the labeling; it is a flower circled by a thick broken line. No words need to be written.

To avoid foods that have been irradiated, consider foods that are labeled stating the foods have not been irradiated. You may also want to consider buying organic and/or locally.

Late Addition

In the *Green Bay Press-Gazette* (Saturday, August 19, 2006) and the *Shawano Leader* (Monday, August 22, 2006), a brief article was printed announcing the FDA approval of using viruses to kill bacteria on poultry and ready-to-eat meats, such as hotdogs and cold cuts.

The virus spray contains 6 viruses that are designed to kill the foodborne pathogen *Listeria*. The meats would be sprayed with this new formulation

before packaging in an effort to decrease the cases of foodborne illnesses caused by this pathogen.

The *American Society for Microbiology* stated that viruses tend to swap their genes with other viruses, opening the potential for this spray to cause different strains of viruses, as well as more deadly ones. Plus, the bacteria may develop a resistance to the viruses in the spray, making the bacteria more difficult to kill through conventional means.

There is also the concern that the viruses will mutate once ingested into the human body. As mentioned previously, *E. coli* exists naturally in the human digestive system, and is required for adequate nutrient absorption and food break-down. Although currently *E. coli* is not a target of this spray, if any of the viruses mutate, it could be. Also, a virus formulation to destroy *E. coli* is being developed, to be sprayed on beef, before it is ground for hamburger.

Although this formulation is classified by the FDA as an additive, it will not appear in food labeling.

Conclusion

Foodborne illnesses are on the rise despite efforts by the USDA and FDA, and the pathogens are becoming more deadly. Twenty years ago, a foodborne illness rarely caused more than a few days of diarrhea and vomiting; today, more people are being hospitalized and dying as a result of a pathogen in their food. The pathogens exist despite efforts to irradiate or modify the foods genetically; some of the interventions to destroy these pathogens are making more harmful bacteria, viruses and parasites, and adding dangerous toxins and by-products.

The only industry that does not irradiate, genetically-modify, or use hormones in the raising and preparation of foods is the organic industry. The beef industry, for example, has routinely tried to blame the organic industry on the increase in incidences of foodborne illnesses. However, Robert A. Robinson, in his report to the House of Representatives stated it was the current commercialized food industry that is causing the increase of foodborne illnesses, NOT the organic farming industry.

All farmers before World War I were “organic”, using cow manure to fertilize their fields. It was only after WWI that farmers began using

chemicals in their fields. Today, only farmers that do not use chemicals on their fields are considered organic. When looking for organic products, however, look for the seal that says “USDA Organic”, as anyone can say they are organic (even if they are not), but only those certified by the USDA are considered to be truly organic.

No matter where you get your food, always prepare it as recommended by the Centers for Disease Control: cook meat thoroughly leaving no red meat; do not eat raw eggs; refrigerate all cooked food immediately after cooking; and wash cutting boards and work surfaces with warm, soapy water after cutting meats to decrease contamination.

If you suspect you have a foodborne illness, seek medical care for diagnosis and treatment.

(Research sources available by written request)

Disclaimer: The information provided by Dr. Ronda is for educational purposes only. It is important that you not make health decisions or stop any medication without first consulting your personal physician or health care provider.



Dr. Ronda Behnke is a distinguished practitioner of Classical Homeopathy and Natural Healing methods. Amongst her clients, she is known for her

exceptional insight and non-judgmental presence. You can contact Dr. Ronda via the website www.HomeopathicCentersofAmerica.org or by calling 920-558-9806. "When it's time to heal, call me...I will listen to you." For a FREE guide to help you along your healing path, visit the HCA website as noted above.

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