Health Care Without Harm opposes the production and marketing of genetically engineered (GE) foods. These foods are not adequately assessed for their credible adverse effects on human or animal health, or on the environment in which they are produced. Also of concern is the threat posed by genetic engineering to environmentally sustainable food production and the threat to the economic livelihood of farmers pursuing sustainable food production.

We therefore encourage health care providers to purchase non-GE foods to the extent possible and to source from suppliers that demonstrate a strong commitment to alternatives to GE food, and that support local farmers and sustainable practices.

Background

For about a decade, companies have introduced genetically engineered (GE) foods into the marketplace. Going beyond traditional breeding, GE technologies artificially manipulate and transfer a new range of genetic material into the food supply, producing foods that would not otherwise occur in nature. Most GE crops are used for animal feed, but food industry figures suggest that up to 70 percent of packaged foods in U.S. supermarkets may contain ingredients from GE corn, soy, or canola. Americans therefore consume GE foods absent adequate studies to assure that there will be no adverse impacts on human or animal health or on the environment.

Outside the U.S., the situation is very different. Dozens of countries, including all of the E.U., Japan, Russia, China, Australia and many others require labels on GE food. In Europe, traceability of GE crops from the farm to the final product is also required. In January 2005, the Parliamentary Assembly of the Council of Europe noted the health and safety issues around GE crops and lack of studies assessing these threats, stating that “the health risks to humans (allergies, nutritional effects, etc) so far have hardly been examined ...(and) there is as yet no reliable information concerning their medium- and long-term environmental effects.”

Human Health Concerns

Few long-term studies have been conducted to assure that production and consumption of GE foods will carry no adverse long-term health impacts. A 2003 peer-reviewed literature search found just ten published studies specifically designed to assess the potential for health effects from GE foods or feed. For hospitals, patient health is of particular concern, since some patients may be more vulnerable to possible problems from GE foods than the general public. For example, full digestion of proteins decreases the likelihood they will survive to produce harm (via direct toxicity or allergenicity), whereas digestive function is sometimes compromised in hospital patients. The immune system in such patients may also be compromised, making them more generally susceptible to harm.

Allergies: Genetic engineering moves proteins novel to the human diet into the food supply. One study showed that a gene from a Brazil nut, when transferred to a soybean, could cause adverse reactions in people with nut allergies if they consumed the GE soy. An editorial in the New England Journal of Medicine noted that unlike gene donors used in most GE crops, Brazil nuts are a known allergen. For the majority of GE crops, the editorial noted, novel genes are not fully assessed for allergenicity, stating that, “Because FDA requirements do not apply to foods that are rarely allergenic or to donor organisms of unknown allergenicity, the policy would appear to favor industry over consumer protection.”

Antibiotic Resistance: Most genetically engineered foods in production today carry fully functioning genes that confer resistance to one or more antibiotics, inserted in order to help identify those cells that have successfully taken up the foreign genes. The British Medical Association, World Health Organization and other medical authorities have called for action to eliminate the use of antibiotic resistance genes in GE crops.

Consistent with what is known about the spread of antibiotic resistance is the concern that genes or other determinants of antibiotic resistance could occur from GE plants to bacteria living in the animal or human gut, where they might be further transferred to unrelated bacteria. Concerns have been raised that people eating
GE foods while taking prescribed antibiotics could find the therapeutic effectiveness of the latter blunted by the former. Transfer of antibiotic resistance can also occur in the environment, from GE plants to pathogenic bacteria carrying that resistance to humans.\textsuperscript{11} Transfer of antibiotic resistance can also occur in the environment, from GE plants to pathogenic bacteria carrying that resistance to humans.\textsuperscript{12,13}

**Toxicity:** Genetic engineering can unpredictably increase levels of a naturally occurring toxin in foods, or create foods that include a toxin that does not normally occur.\textsuperscript{14} Unexpected changes in food are common with genetic engineering,\textsuperscript{15} and the existing inadequate safety evaluations could miss potentially toxic changes.\textsuperscript{16}

**Contamination of Organic and Natural Food:** Over 100 incidents have been documented involving GE material contaminating foodstocks produced without GE technology, and/or illegally entering the food or feed supply.\textsuperscript{17} In at least two cases, animal drugs unapproved by the FDA and grown in GE pharmaceutical (pharm) crops have contaminated natural crops destined for the food supply.\textsuperscript{18} Such pharm crops are still widely grown, even though a National Academy of Sciences expert committee warned in 2002 that pharm crops could cross with food crops, “with the unanticipated result of novel chemicals in the human food supply.”\textsuperscript{19}

**Cloned and GE Animals:** Currently food products from cloned or GE animals are in development, and the biotechnology industry hopes to market poultry, pork, beef, milk and other foods from such animals in the near future. But since they create difficult pregnancies and many deformed animals for every “successful” birth, these technologies are inherently cruel to animals. Many scientists now believe that cloning may cause inherent defects that may be unpredictable, undetectable, and could cause food safety concerns. As one cloning scientist stated, “Even apparently normal clones have an abnormal regulation of many genes.”\textsuperscript{20}

**Conclusion**

Based on plausible and credible evidence of risks to human and animal health and to ecosystems, unresolved uncertainties about the full scope and scale of those risks, and concerns about threats to sustainable food production from genetic engineering, HCWH encourages health care providers to take precautionary action by requesting and preferentially purchasing non-GE foods from suppliers.

Since GE foods in the U.S. are not labeled, hospital food service providers face challenges in avoiding them. Nonetheless, hospitals can take steps to minimize their use of GE foods, increase purchasing of organic food (which are made without ingredients from GE crops, under USDA national organic standards), and can request that their suppliers avoid GE foods. Hospitals can also urge policymakers to support food and agricultural regulations that protect the natural food supply, promote non-GE alternatives, and require labeling of GE foods.

**Threats to Environmental Sustainability and Social Responsibility**

HCWH promotes the purchase of healthy food that is socially responsible and environmentally sustainable. Based on existing science, the purchase and use of GE foods violates these principles.

**Increased Herbicide Use:** While industry claims GE crops reduce pesticide use, a 2004 analysis found the opposite. Chuck Benbrook, the former Director of the National Academy of Sciences’ Agricultural Board estimated adoption of GE crops actually has resulted in a 122 million pound increase in pesticide use in the U.S. since 1996.\textsuperscript{21} Scientists have found weeds are developing resistance to herbicides used with GE crops,\textsuperscript{22} and warn that resistant weeds are requiring farmers to use higher application rates of herbicides and/or more toxic chemicals,\textsuperscript{23} with potentially more toxins tainting our food and the environment.

**Threats to Non-target Species and Soil Ecology:** Lab studies and field trials have suggested that GE crops could harm butterflies and other insects, other wildlife, and soil ecology.\textsuperscript{24}

**Threats to Organic Farming:** Like weed resistance, insect resistance to GE crops is also a concern. GE insect resistant crops produce an insect toxin, Bt, which has been safely used by farmers for decades. A natural bacteria-derived insecticide, Bt has been called the world's most important biological insecticide, and is permitted as an emergency pest control in organic farming. Once insects evolve resistance to engineered Bt crops, organic farmers who rely on Bt sprays could face uncontrollable infestations.\textsuperscript{25}

**Some specific steps hospitals can take include:**

- **Surveying suppliers:** hospitals can let their food suppliers know that they are interested in sourcing non-GE foods, and can ask suppliers about the availability of organic or non-GE alternatives.

- **Buying local:** Direct relationships with farmers and other food purveyors can bring hospitals more control over the source of food, including whether the food was produced from gene altered seed.

- **Avoiding common GE ingredients:** most GE foods are from three main crops: soy, corn, and canola. Hospitals can look for least-processed products with fewer such ingredients. Buying organic food also insures against the use of GE crops, as USDA organic standards preclude the use of GE seeds.

- **Lobbying for regulations on pharm crops:** As the target customers for the products of pharming, the health care industry can play a key role in demanding
regulations that will protect the food supply and require strict safety rules. These should include restrictions against using food crops in pharmaceutical production, and a requirement for closed, indoor cultivation of all pharm plants.

- Lobbying against the approval of food from cloned or GE animals: Hospitals should join animal welfare, environmental, and consumer advocates in urging legislators to ban the marketing of food products from cloned and GE animals.

ENDNOTES

1 The first genetically engineered crop marketed in the U.S. was the Flavr Savr tomato in 1994. Genetically engineered soy marketed in 1996 was the first introduction of a GE crop that became widely grown.


