A potent case of food poisoning, with its nausea, vomiting, and I-think-I’m-going-to-die misery, is unforgettable. Some of the most common causes of food poisoning are the bacteria and viruses carried by farm animals and that are abundant in their manure. Many common germs live harmlessly in animals but can make people deathly ill. Those pathogens can jump from animals to people through tainted food, air, soil, water, or direct contact between people and livestock.

Although diet-related chronic diseases, such as heart disease and various kinds of cancer, kill many more people than food poisoning, the sudden onset of food poisoning and the fact that it can be traced to particular foods add urgency to efforts to control it.

- More than 1,000 Americans die each year from foodborne illnesses linked to meat, poultry, dairy, and egg products.
- The annual medical and related costs of foodborne illnesses in the United States are at least $7 billion.
- Fruits and vegetables are a major cause of food poisoning thanks, in part, to contamination from livestock manure.
- Raising large numbers of poultry and pigs increases the risk of deadly flu epidemics.
The Scope and Costs of Foodborne Illness

Foodborne illnesses are caused by such well-known bacteria as Campylobacter jejuni, the deadly O157:H7 strain of Escherichia coli (E. coli), and several types of Salmonella, as well as by such little-known germs as Norwalk-like viruses. The federal Centers for Disease Control and Prevention (CDC) estimates that pathogens in food cause about 76 million illnesses, 325,000 hospitalizations, and 5,200 deaths each year (see table 1).\(^1\) Norwalk-like viruses, which cause gastrointestinal distress, are the most common source of illnesses whose causes have been identified. Typically, they are transferred to food by poor sanitary practices during preparation. Although bacteria cause fewer illnesses than viruses, they are more likely to be fatal. In fact, listeriosis, caused by Listeria monocytogenes, is fatal in 20 percent of the people it infects. Germs, such as E. coli and Salmonella, associated with food animals accounted for at least 1,100 of the deaths (and probably many more in the “unknown” category).

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>Illnesses</th>
<th>Deaths</th>
<th>Cost (medical, lost productivity, premature death)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacteria</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campylobacter</td>
<td>2,000,000</td>
<td>100</td>
<td>$1.2 billion</td>
</tr>
<tr>
<td>Salmonella</td>
<td>1,300,000</td>
<td>550</td>
<td>$2.4 billion</td>
</tr>
<tr>
<td>Clostridium perfringens</td>
<td>249,000</td>
<td>7</td>
<td>Not available</td>
</tr>
<tr>
<td>Staphylococcus</td>
<td>185,000</td>
<td>2</td>
<td>$1.2 billion</td>
</tr>
<tr>
<td>E. coli*</td>
<td>94,000</td>
<td>80</td>
<td>$1.0 billion</td>
</tr>
<tr>
<td>Listeria</td>
<td>2,500</td>
<td>500</td>
<td>$2.3 billion</td>
</tr>
<tr>
<td><strong>Parasites</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidium parvum</td>
<td>300,000</td>
<td>7</td>
<td>Not available</td>
</tr>
<tr>
<td>Giardia(^1)</td>
<td>200,000</td>
<td>1</td>
<td>$0.5 billion</td>
</tr>
<tr>
<td>Toxoplasma gondii</td>
<td>113,000</td>
<td>380</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Viruses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norwalk-like viruses</td>
<td>9,200,000</td>
<td>120</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Unknown</strong></td>
<td>62,000,000</td>
<td>3,200</td>
<td>Not available</td>
</tr>
<tr>
<td><strong>Total(^2)</strong></td>
<td>76,300,000</td>
<td>5,207</td>
<td>$6.9 billion</td>
</tr>
</tbody>
</table>

* The estimate covers only O157:H7 and other shiga toxin-producing strains of E. coli. Other strains of E. coli cause additional illnesses.

\(^{1}\) Although cattle carry Giardia, it is unclear whether they carry strains that can infect humans. The deaths may be due to Giardia from wildlife or other sources.

\(^{2}\) Figures do not sum to totals because data are limited to those pathogens causing in excess of 100,000 illnesses or 80 deaths. See source for complete listings. Moreover, $6.9 billion probably is an underestimate because the costs of many major foodborne illnesses never have been calculated; this total covers only about 9 percent of the estimated 76 million foodborne illnesses suffered each year.
The causes of food poisonings are rarely tracked down, because it is not worth the effort and cost when only single individuals are affected. Instead, public health experts focus on outbreaks affecting dozens or hundreds of people. The Center for Science in the Public Interest (CSPI) has compiled a database of 3,810 outbreaks caused by germs (plus another 700 caused by toxins in fish) and for which the contaminated food was identified. Though the database covers only a small percentage of foodborne illnesses, it indicates which foods pose the greatest risks.

Red meat and poultry—including luncheon meats—caused more than 1,200 of the outbreaks in CSPI’s database (see table 2). Americans eat far less seafood than meat and poultry, yet seafood was linked to more than 300 of the outbreaks. Fruits and vegetables, normally thought of as being perfectly safe, caused over 500 of the identified outbreaks. However, about one-third of those outbreaks actually were caused by germs normally associated with animal manure, as were two-thirds in the “other” category. Dairy was the safest major category in the database, causing about 150 of the identified outbreaks, but the largest outbreaks on record were caused by dairy foods. In 1985, milk contaminated with Salmonella sickened over 16,000 people in the Chicago area and killed 2. In 1994, 224,000 people around the country were sickened by ice cream made from ingredients contaminated with Salmonella that was in dirty tanker trucks. All told, 58 percent of the outbreaks were associated with animal products or germs normally associated with livestock.

Considering how much of our food is contaminated, it is remarkable that foodborne illnesses do not strike more people. In 2002, Consumer Reports

Table 2. Sources of foodborne illness outbreaks in the United States linked to microbial hazards, 1990–2003

<table>
<thead>
<tr>
<th>Food</th>
<th>Outbreaks</th>
<th>People sickened</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Meat, poultry, luncheon meats</td>
<td>1,221</td>
<td>31</td>
</tr>
<tr>
<td>Seafood*</td>
<td>306</td>
<td>8</td>
</tr>
<tr>
<td>Vegetables and fruits</td>
<td>529</td>
<td>14</td>
</tr>
<tr>
<td>Eggs</td>
<td>329</td>
<td>9</td>
</tr>
<tr>
<td>Dairy</td>
<td>151</td>
<td>4</td>
</tr>
<tr>
<td>Other (sandwiches, pasta, salads, ethnic foods, etc.)</td>
<td>1,274</td>
<td>33</td>
</tr>
<tr>
<td>Total†</td>
<td>3,810</td>
<td>100</td>
</tr>
</tbody>
</table>

* Includes only microbial-linked outbreaks, not those due to scombroid or ciguatera toxins in fish.
† Percentages do not total 100 because of rounding.
magazine found that 1 percent of ground beef samples bought at grocery stores had significant levels of fecal contamination and 4 percent were on the brink of spoilage. The magazine’s tests of almost 500 fresh chickens from 25 cities found that 42 percent were contaminated with \textit{Campylobacter} and 12 percent with \textit{Salmonella}. Overall, 49 percent of the chickens were contaminated with one or both bacteria. Adding to the risk, 90 percent of the \textit{Campylobacter} and one-third of the \textit{Salmonella} were resistant to at least one antibiotic. The U.S. Department of Agriculture (USDA) found an even bigger problem: 90 percent of birds tested positive for \textit{Campylobacter}. Government data also show that about 2.3 million eggs are contaminated with \textit{Salmonella} each year. Although thorough cooking kills the \textit{Campylobacter} and \textit{Salmonella} in infected meat, poultry, and eggs, the contaminated raw foods may infect consumers who touch them or eat them undercooked.

Foodborne illnesses typically occur shortly after tainted foods are eaten and, while causing real misery, are short-lived. But they sometimes have long-term consequences. Guillain-Barré Syndrome, an autoimmune disorder caused by \textit{Campylobacter} infection, is one such lingering result. Reiter’s Syndrome is a type of arthritis caused by \textit{Salmonella}. Even more disturbing than those relatively rare events is what a study at the Statens Serum Institute in Denmark found. These scientists tracked 49,000 people who had suffered gastrointestinal infections and compared them to individuals who had not. The findings? People who had had food poisoning were more than three times as likely to die in the following year. In other words, individuals who contract foodborne illnesses are either already in poor health—or foodborne illnesses may be much more harmful than anyone thought.

\textbf{Our Food System Increases Certain Food-Safety Risks}

Food poisoning has afflicted humans since time immemorial and was considered an inevitable part of life. Health officials and industry have improved the safety of the food supply through the use of refrigeration, pasteuriza-
tion, and other technologies. But in some ways we are going backward. At least four aspects of large-scale industrial agriculture and food processing have increased the risk of major food-poisoning outbreaks:

- **Germs can be dispersed nationally and internationally with incredible rapidity.** On a typical day, 24,000 hogs are shipped from North Carolina to 27 states, as well as to Puerto Rico, Mexico, Canada, and South America.
- **Severe crowding on industrial factory farms helps livestock-borne pathogens spread from animal to animal.** Half a century ago, a single chicken carrying a pathogen such as influenza might infect 100 others on the same farm; now that same bird might infect 50,000 others sharing its football field-sized shed. And when some mutant strains of viruses and bacteria would have only infected highly vulnerable animals, a particularly infectious agent would have died out quickly in a small flock or herd composed of mostly healthy animals. Today’s huge factory farms, on the other hand, increase the chances of a germ’s finding weakened animals that can act as reservoirs.
- **The widespread use of antibiotics to mitigate problems caused by crowding on factory farms adds a new dimension to food-poisoning risks.** The regular administration of low doses of antibiotics promotes the growth of antibiotic-resistant bacteria (see “Factory Farming’s Antibiotic Crutch,” p. 68). Thus, mutant bacteria that infect humans may be tougher to treat.
- **Industrial processing of meat allows pathogens from a small number of animals to contaminate large amounts of food.** As Eric Schlosser reminds us in *Fast Food Nation*, butchers used to provide consumers with ground beef made from a single cut. Now that large meatpacking plants have taken over, “there are hundreds or even thousands of animals that have contributed to a single hamburger,” as one expert at the CDC noted. Consequently,
a foodborne illness that once might have affected only one family now might affect scores of families.

Industry, of course, doesn’t want to poison its customers and, under pressure from government, consumer groups, and the media, has been slowly testing and instituting new measures to prevent contamination on farms or to kill the germs at slaughterhouses. But there is a constant tension between wanting to raise and process as many animals as rapidly and cheaply as possible and ensuring that the food is as safe as possible. Compromises are always made.

**Animal Pathogens Can Sicken Even Vegetarians**

The hazards created by livestock production increasingly jeopardize not only the safety of meat, but also of fruits and vegetables. About 30 percent of the food-poisoning outbreaks traced to produce actually are caused by pathogens of animal origin. Fruits and vegetables can be contaminated by tainted irrigation water, manure used as fertilizer, or cross-contamination from meat during transport or in the kitchen. Foods as diverse as parsley, scallions, cantaloupes, lettuce, bean and alfalfa sprouts, orange juice, and beans have caused outbreaks due to microbes characteristic of animal agriculture.

While cooking kills most pathogens in meat, poultry, and some vegetables, other vegetables and fruit are not cooked. Who wants to cook one’s salad to be sure it’s safe?

- In lettuce plants, *E. coli* O157:H7 can be drawn up by the roots and migrate into the interior of the leaf, where the germs cannot be removed by washing. In 1996, lettuce contaminated with that bacterium caused a large outbreak of illnesses across Illinois, Connecticut, and New York. One victim was a three-year-old girl who needed surgery to remove a pool of blood from her brain and was left with damaged vision. Federal health officials discovered that cattle were penned next to the barn where the lettuce was processed and were the likely source of the contamination.

- Between 1995 and 2002, 15 outbreaks were traced to *Salmonella*-contaminated sprouts. In one case, alfalfa sprouts harvested in Idaho from a field adjacent to a cattle feedlot caused outbreaks in Michigan and Virginia. The problem was so serious the U.S. Food and Drug Administration (FDA) warned in 2002 that sprouts were only safe to eat after cooking.

Washing produce helps, but as long as animal manure is anywhere near fields and packinghouses, pathogens may be a threat.

**Manure: How Many Pathogens Get Spread**

Manure is one means by which germs in livestock enter the food supply and infect humans. Most of the germs cause gastrointestinal problems, but *E. coli* O157:H7 causes hideously painful and sometimes fatal kidney problems (hemolytic uremic syndrome).

In a 1999–2000 USDA study of 73 cattle feedlots, 50 percent tested positive for *Salmonella*. Eleven percent of samples contained *E. coli* O157:H7, and every feedlot had at least one positive sample in the course of the study.

The biggest risk to humans is probably from the fecal matter on animal hides and from intestines that contaminates meat and poultry at slaughterhouses. But pathogens in livestock manure also contaminate pools, lakes, and streams. Outbreaks of gastroenteritis (inflammation of the lining of the intestines or the stomach) traced to contaminated recreational water doubled between 1997–98 and 1999–2000. Cryptosporidium parvum and *E. coli* O157:H7 account for nearly 90 percent of such outbreaks. A remarkable 60 percent of gastroenteritis from recreational water use occurred in treated water, such as swimming pools. If manure is not adequately treated, *E. coli* can leach into water—especially if a rainstorm occurs shortly after application to cropland—and even get into well water. Of the outbreaks caused by contaminated drinking water in 1999–2000 where the cause was identified, the majority resulted from animal-borne pathogens.

Farmers can compost manure to decrease the populations of bacteria enough to allow it to be spread as fertilizer, but they must control the temperature and aeration, which can be difficult and costly given the massive quantities of manure generated by large animal feeding operations. Bacteria can survive in the lagoons of liquefied livestock waste, which mimic the moist, oxygen-poor climate of the intestines in which they thrive. Thus,
when lagoon liquid is sprayed onto fields, bacteria are sprayed, too. Dry-mounds of manure before application—another popular technique—is better than lagoon storage for eliminating bacteria, but serious risks remain. The hardy *E. coli* O157:H7 can survive for 21 months in an unaerated manure pile and for 4 months in an aerated pile. Even harsh winters cannot eradicate the germ: It can survive 100 days in frozen manure.

One researcher discovered the tenacity of pathogens while studying a variety of vegetables grown in soil that was fertilized with manure inoculated with *Salmonella* and *E. coli*. Both of those bacteria were found on the harvested produce, and they also survived in the soil even after repeated cycles of freezing and thawing. Furthermore, although cattle typically remain positive for *E. coli* O157:H7 for only a month, keeping a herd in a feedlot or grazing them on a field where their manure has been used as fertilizer may lead animals to be continually infected.

In recent years, poultry litter—ground-up feces, feathers, bedding, and spilled feed—has been fed to cattle. That practice creates a cycle that may infect those cattle with mad cow disease, because chickens are sometimes fed processed cattle products—pulverized bone and meat. If that chicken feed is excreted or spilled onto the floor by poultry, it may become part of cattle feed. The initial route through which mad cow disease was spread was the feeding of processed cattle products to cattle. So far, however, the cattle-chicken-cattle feeding cycle has not been proven to spread the disease. (For more on mad cow disease, see appendix A, p. 174.)

### Diseases Direct from Livestock to You

In addition to hosting *foodborne* pathogens, farm animals carry numerous microbes that can infect people *directly*. An estimated 200 different diseases can be transferred from animals to people, and that number is growing. Of 156 emerging diseases around the world, such as *pfiesteria*, hantavirus, and *West Nile* virus, 73 percent inhabit animals for part of their life cycles.

Microbes from livestock can also reach people through the environment. Numerous pathogens—including antibiotic-resistant strains from livestock—are found in the air, though their impact on surrounding communities is
unknown. The air inside one swine barn contained *Staphylococcus*, *Pseudomonas*, *Bacillus*, *Listeria*, and other bacteria at worrisome levels. Streams, too, could infect swimmers, boaters, and fishers. More research is needed to determine just how big a problem environmental contamination is.

**The Most Threatening Animal-Borne Disease: Influenza**

Influenza is the single biggest animal-borne threat, and public health officials around the globe are beginning to safeguard against possible pandemics. University of Minnesota professor Michael Osterholm warns: “Pandemics are not a question of [whether] they will happen…. The question we really have before us is how big, how bad, and when will it start.”

Chickens, ducks, and pigs serve as major reservoirs for flu viruses. Because pigs can become infected with both human and avian strains of a given virus, the viruses may swap genes, creating a new harmful strain to which humans may be susceptible. That process may be facilitated by mixing pigs from different farms or regions—a common event at livestock auctions or during shipping. Innocuous influenza viruses in wild birds may infect poultry, where they could undergo mutations that enable them to infect and kill humans. The gravest risk arises when flu viruses gain the ability to spread directly from person to person.

Various gradually changing strains of influenza virus are endemic and cause annual nationwide outbreaks in the United States. In an average year, 10 to 20 percent of the population gets the flu, with 114,000 requiring hospitalization and 36,000 dying. Of course, those figures are dwarfed by the massive 1918–19 flu pandemic, which killed more people faster than any disease ever. While “only” 500,000 Americans died, some countries lost half their populations. Globally, as many as 50 million people died. That strain of flu likely came from birds and then spread to humans. If a similar strain of flu struck today, some experts estimate that 1.8 million Americans would die.

Poultry-related influenza outbreaks have been much in the headlines in recent years. In 1997 in Hong Kong, a strain of avian influenza (“bird flu”) H5N1 leapt from poultry to humans, infecting 18 people. Six people
Factory Farming’s Antibiotic Crutch

Food poisoning is bad enough when you’re infected with ordinary germs. But when those germs are resistant to customary antibiotics, ordinary illnesses may become life threatening. We’re courting disaster when we allow farmers to use penicillin, erythromycin, and other important antibiotics for economic—not medical—reasons.

Antibiotics, the first true miracle drugs, have saved countless lives over the past half-century. But far greater quantities of antibiotics are used in farm animals than in humans. The drugs are sometimes used to treat sick animals, but mostly they are administered at low, non-therapeutic levels to whole flocks and herds to promote growth and counteract the dirty, crowded conditions in which most animals are raised.

**Antibiotic Use Breeds Resistance**

Using low levels of antibiotics day in and day out on millions of animals greatly increases the chances that bacteria—including those that cause foodborne illnesses—will develop antibiotic resistance. The problem arises when a germ happens to mutate in one of several ways that reduces the antibiotic’s effectiveness. The tougher new bacteria:

- pump the antibiotic out of their cells,
- degrade the antibiotic,
- change the antibiotic’s chemical structure, or
- modify target molecules to “fool” the antibiotic.

The antibiotic kills off all but the resistant germs, which then flourish. If people are infected by those bacteria via contaminated food, they can suffer illnesses that may only be cured by the newest, most powerful (and expensive) antibiotics. Farmers and others in direct contact with livestock can also be infected by the resistant bacteria.

The U.S. Department of Health and Human Services has recognized that “Antimicrobial resistance among foodborne bacteria, primarily *Salmonella* and *Campylobacter*, may cause prolonged duration of illness, and increased rates of bacteremia (bacteria in the blood), hospitalization, and death.” Antibiotic-resistant *Salmonella*, a common foodborne pathogen, causes at least 29,000 extra illnesses, 342 extra hospitalizations, and 12 extra deaths per year. The ultimate danger is that bacteria will develop resistance to all the common antibiotics and cause a deadly epidemic.

A 2001 U.S. Food and Drug Administration study of ground meat and poultry found that 20 percent of the samples contained *Salmonella*, and over half of those bacteria were resistant to at least three important antibiotics. Even more alarming, some strains of *Salmonella* and other foodborne pathogens were resistant to a
dozen different antibiotics. The livestock industry’s profligate use of antibiotics almost certainly selects for those “superbugs.”

In 1995, the FDA—over the objections of the Centers for Disease Control and Prevention—allowed chicken farmers to treat whole flocks with fluoroquinolones, a family of powerful new antibiotics, even if only a few birds were sick. Predictably, rates of resistance in *Campylobacter* quickly soared from virtually zero to 20 percent. That spurred the FDA, in 2000, to reverse course and propose barring flock-wide use of fluoroquinolones. Two years later, the agency estimated that fluoroquinolone-resistant infections were causing over 17,000 additional cases of food poisoning, leading to 95 hospitalizations. Only two companies marketed the antibiotics: Abbott Laboratories immediately stopped marketing its product, but it took five years to overcome Bayer Corporation’s opposition and to stop farmers’ use of its similar drug.

**Growing Opposition to a Dangerous Practice**

Livestock producers and the animal-drug industry insist that giving animals low doses of antibiotics is safe. But public health experts counter that it is senseless to endanger the effectiveness of vital human medicines—especially when they are not essential to farmers. The American Medical Association, American Public Health Association, and other health groups have opposed unnecessary uses of antibiotics on farms. The American Academy of Pediatrics found that “children are at an increased risk” from antibiotic-resistant infections rooted in non-therapeutic uses of antibiotics in food-producing animals. And a study by the Institute of Medicine concluded that the “FDA should ban the use of antimicrobials for growth promotion in animals if those classes of antimicrobials are also used in humans.” The World Health Organization made a similar plea. More than 300 local and national organizations, including the medical, public health, and pediatrician organizations mentioned above, have supported legislation to limit the use of antibiotics in livestock.

Industry maintains that antibiotics help healthy animals grow faster and at a lower cost. But a committee of the National Academy of Sciences emphasized that the
“beneficial effects of subtherapeutic drug use are found to be greatest in poor sanitary conditions.” Just as public health experts finally figured out that cleaning up the water and the air drastically reduced infectious diseases in people, so agribusiness should look to use different approaches to prevent illnesses in their animals. If they cleaned up their hog sheds, gave their chickens more room to roam around, stopped feeding cattle an unnatural grain-rich diet, and bred animals not just to grow fast but to have strong immune systems, farmers could both raise healthier animals and protect the effectiveness of precious antibiotics.

The European Union began phasing out the use of medically important antibiotics in healthy animals in 1999 and banned that use completely on January 1, 2006. Denmark, the world’s largest exporter of pork, moved even faster. In 1998 it instituted a virtual ban (through a $2 tax on treated pigs) on using growth-promoting antibiotics in pigs after weaning. In 2004, farmers were not using any antibiotics to promote growth, though more antibiotics were being used to treat illnesses. The total poundage used is dramatically lower than before the ban, and the prevalence of both resistant and nonresistant foodborne pathogens plummeted in hogs and their meat. Moreover, Danish economists estimate that the cost of producing pork will rise just 1 percent.

Change is coming, if more slowly, in the United States. Tyson Foods, the nation’s largest chicken producer, reduced its use of antibiotics by 93 percent between 1997 and 2004, and three other major companies say they have stopped using antibiotics on healthy animals. The Iowa Pork Producers Association is now urging “all Iowa pork producers to voluntarily discontinue use of all growth-promoting antibiotics” in the feed of pigs that weigh more than about 50 pounds. And a rapidly growing number of organic livestock producers do not administer any drugs at all (they treat sick animals, but then do not market them as organic). Probably reflecting such developments, between 1999 and 2004 the volume of antibiotics used in animals declined by 10 percent, despite a 5 percent increase in livestock production. Unfortunately, there is no similar progress in the cattle industry.

died—a fatality rate of 33 percent. Hong Kong officials responded by ordering the slaughter of 1.4 million birds. Luckily, the disease did not spread easily from person to person, so control measures were effective. Since 1997, however, four more outbreaks of avian influenza have occurred in Hong Kong, prompting the government to respond with such preventive measures as poultry vaccinations and new restrictions on imported poultry. Between 2003 and 2006, bird flu spread to other parts of Asia and countries in Europe and Africa. It has killed over 100 people and prompted the slaughter of more than 150 million poultry, costing the industry billions of dollars.

The CDC says that “The avian influenza...outbreak in Asia is not expected to diminish significantly in the short term.” In 2004 in North
America, a milder strain of avian influenza emerged in Canada and Texas. No human deaths were reported, although two poultry workers became ill. Some 17 million chickens, turkeys, and ducks were culled to prevent the virus from spreading. In 2006, veterinary and health experts in North America and elsewhere were bracing for a new round of infections. Tara O’Toole, director of the University of Pittsburgh Medical Center’s Center for Biosecurity, speculated that a highly infectious bird flu virus could kill as many as 40 million Americans. While the most dire predictions are likely overblown—partly because mutations are expected to weaken the virus if it “learns” to spread from person to person—the possibility of epidemics is enormously enhanced by the widespread raising of large numbers of livestock.

**Weak Safeguards Endanger Consumers**

All of the problems mentioned above are exacerbated by the federal government’s incomplete and fragmented food-safety system. For starters, the United States does not have a system that tracks animals and meat from the farm to the slaughterhouse to the table. That prevents health officials from tracing the cause of a food-poisoning outbreak back to the farm. Also, the government cannot require food processors to recall products that are suspected of causing outbreaks; instead, they must ask and negotiate with companies—while people are getting sick. The USDA cannot fine companies for violating the law, and the FDA can only fine a company $1,000 and threaten officials with a year in jail. Those agencies’ real power comes from their authority to seize products on store shelves and generate bad publicity. As for imported foods, the USDA has the power to inspect foreign processing plants, but the FDA does not.

Most of the responsibility for ensuring a safe food supply rests with the USDA and the FDA, with almost a dozen other agencies playing smaller roles. The USDA oversees the safety of meat, poultry, pasteurized eggs, and processed foods containing meat or poultry, while the FDA oversees...
everything else, including produce, eggs in their shells, seafood, and processed foods that contain little or no meat or poultry. That division creates some bizarre situations. For example, the USDA regulates dehydrated chicken soup, but the FDA oversees dehydrated beef soup. Peculiarly, though, the FDA regulates chicken broth, but the USDA regulates beef broth. (The government is looking to correct that particular bit of bureaucratic craziness.)

More importantly, federal funding priorities are misguided. CSPI’s food safety director Caroline Smith DeWaal emphasizes that while FDA-regulated foods cause two-thirds of all outbreaks, the FDA receives only 38 percent of food-safety funding. As a result, that agency performs too few inspections of the facilities it oversees. The USDA inspects meat and poultry plants daily; the FDA inspects other operations only about once every five years on average.62

What It All Means

Animal products cause many foodborne infections in the United States, and livestock are the source of other infectious diseases, such as the flu, that are spread by vehicles other than food. Sicknesses and deaths aside, those illnesses generate enormous health-care and other costs. Some of the production systems that animal agriculture uses promote the spread of dangerous pathogens from animals to meat to humans and from animal manure to fruits and vegetables. Industry is well aware of the food-safety problem and has been attacking it with new technologies, ranging from steam-treating and acid-washing beef carcasses to vaccinating poultry to irradiating cuts of meat. Still, foodborne and farm animal–related illnesses likely will never be eliminated totally. Meanwhile, the government’s food-safety system, which includes programs that are perpetually underfunded and riddled with holes, has proved inadequate in fulfilling its public health mission. With a large percentage of foodborne illnesses caused by animal products, one personal solution is obvious: eat fewer animal products—and wash your fruits and vegetables.