

## Curbing Foodborne Illnesses

As the century draws to a close, many consumers are concerned about an enemy they cannot see—one that can attack silently through their food and drink.

Researchers are implementing the latest technology to clearly define the danger. But, they add, some responsibility for food safety must rest with consumers, who are urged to take precautions such as: Cook meat thoroughly, and drink milk that has been properly processed.

Flashback. The year is 1894, and the enemy is tuberculosis.

“Investigations have been made and are being continued to determine the frequency with which the bacillus of this disease is to be found in the milk of tuberculous cows,” wrote Daniel E. Salmon, chief of USDA’s Bureau of Animal Industry, in the bureau’s 1893 and ’94 annual reports.

“The questions connected with this aspect of the subject are of such vital importance that they should be decided at an early day, and the danger may in the meantime be avoided by pasteurizing the milk before it is used.”

Obviously, microbial contamination of food is not new, nor is public concern about it. These microscopic assailants are not some freakish latter-day response of Nature to our increasingly complex world; they’ve always been here. What’s changed—and sharpened—is our ability to recognize and respond to them.

Today we have better methods for linking a foodborne illness to a specific microbe. In earlier years, we often couldn’t pinpoint a microbial cause for illness, nor the source of that microbe.

These new technological abilities have yielded some disturbing num-

bers. For example, an average 6,249 cases of *Salmonella*-related foodborne illness are now reported annually to the U.S. Department of Health & Human Services’ Centers for Disease Control—and it’s estimated that only 1 to 10 percent of salmonellosis cases are actually reported.

*Salmonella* is the most common cause of foodborne illness, but it’s certainly not the only one. On average, CDC also receives reports of 1,994 cases of *Shigella* illness annually, 636 cases of *Staphylococcus aureus*, 549 cases of *Clostridium perfringens*, 200 cases of *Streptococcus Group A*, 145 cases of *Campylobacter*, and 128 cases of *E. coli*-linked foodborne illness.

Our gains in knowledge of microbial contamination over the past 40 years have been nothing short of revolutionary. But we still have miles to go. We’ve focused in the past on microbes that cause diseases in animals. Now we must turn more attention to those that are carried by animals with no obvious ill effects, but that wreak havoc in humans.

We must pay more attention to the **ecology** of these microbes. For example, it’s only in the past 4 or 5 years that we have recognized the significance of mice in the spread of *Salmonella*.

Rather than simply trying to combat the microbe in the final product—food—we must develop production systems that keep the microorganism out of food animals in the first place. We have to attack this problem all the way through the food production system, not just at one point.

This vigilance is particularly essential in light of our changing population.

A century ago, those people most physically vulnerable to foodborne illness—the very young and the very old—were more likely to succumb first to other illnesses, such as

pneumonia. Now medical technology has advanced to a point where we can and do save many of them. This means there are a greater number of Americans in the age groups that may fall prey to foodborne pathogens.

Also among the highly susceptible: patients undergoing chemotherapy, recent recipients of organ transplants, and people whose immune systems are depressed, such as by acquired immunodeficiency syndrome (AIDS).

With our improved medical technology have come higher general expectations for public health. Today’s consumers **expect** to be protected against health threats such as foodborne illnesses.

Is today’s food more hazardous? Here’s a point to consider: The more times you cut up a product—whether it’s a cabbage or a ham—the more surface area you expose, and the more places there are for bacteria to grow.

Products that combine meat and vegetables and are minimally cooked could also pose a threat, because we know that vegetables can carry *Salmonella*. From the standpoint of microbial contamination, you’re probably better off with whole vegetables and larger cuts of meat.

But we can’t turn back the clock and expect everyone to cook everything from scratch. Today’s world is one of fast foods, processed foods that go from microwave to table in minutes, foods whose preparation is largely in someone else’s hands. Because of these changes in how modern America eats, everyone must work together—from the producers and regulators to the processors and consumers—with increased awareness and commitment to keeping our food supply as safe as it is plentiful.

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