



How Safe is Our Food?

Lack of adequate research on foodborne illness means greater challenges to managing and preventing outbreaks

In the first nine days of Dec. 2006, the Canadian Food Inspection Agency (CFIA) released nine Health Hazard Alerts and related recalls: contamination of Italian olives with the dangerous bacteria *clostridium botulinum*; undeclared nuts in biscotti products; possible *E. coli* 0157:H7 in green onions at Taco Bell restaurants; undeclared almonds in Swiss chocolate products; apple cider products contaminated with lead; undeclared almond protein in Belgian chocolate bars; *salmonella* in American cantaloupes; and *salmonella* in fresh spinach from the U.S. In the previous month we had huge recalls of American spinach contaminated with animal feces, carrot juice with botulism and chocolate products with contaminated soy lecithin. Many news stories have seized on these cases to question, again, the safety of our food. We keep saying that our food is safe and that it has never been safer, but this is beginning to wear a little thin. How safe is our food?

Surprisingly, it's not possible to be very precise about the incidence of foodborne illness in Canada. The most common symptoms include stomach cramps, nausea, vomiting, diarrhea and fever, and because these symptoms resemble stomach flu, most cases of foodborne illness go unreported. Only the serious cases or large outbreaks of illness are investigated. To be included in Canada's national statistics, a person must be infected, become ill, consult a doctor and be sent for tests. A lab test must identify the illness-causing bacterium, recognize it as foodborne, and report to the local health department, which in turn must report it. Any break in the chain will cause the case to be described as estimated rather than confirmed.

Estimates among epidemiologists vary widely on the percentage of actual cases that are reported, but there is a clear consensus that foodborne illness is under-reported around the world. The World Health Organization (WHO) has estimated "that the reported incidence of foodborne diseases represents less than 10 per cent, or maybe even less than one per cent, of the real incidence." Surveys in a few countries indicate that foodborne diseases might be 300 to 350 times more frequent than the reported cases suggest. Until recently, Health Canada estimated that 2.2 million Canadians suffer from foodborne illnesses annually, resulting in 30 deaths a year. Now we are told that public health agencies

estimate that "Canada has between 11 million and 13 million cases a year," or 35,000 cases of food poisoning each day.

If the incidence of foodborne diseases in Canada is unclear, it's obviously difficult to estimate the costs. Some of the earliest work in this area was carried out by Dr. Ewen Todd of Health Canada. In a widely reported study, he concluded that the economic impact of foodborne disease was in the "billions" annually. The WHO reports a more recent conservative estimate that in the U.S. "diseases caused by the major pathogens alone are estimated to cost up to US\$35 billion annually (1997) in medical costs and lost productivity."

The fact is that in spite of the remarkable success in controlling many foodborne diseases of the past, such as scarlet fever, bovine tuberculosis and brucellosis, several recent factors – including increases in world food trade, new emerging pathogens, the role of food processing operations, and the aging population – have combined to create major new challenges, making food safety once again a major public health issue in Canada. There are now more than 250 different types of bacteria, parasites, viruses and toxins that are known to cause food poisoning, and it's now the largest class of emerging infectious diseases in Canada.

On top of all this lack of clarity on incidence and costs is the fact that the science of foodborne illness is often remarkably uncertain. There are huge knowledge gaps on almost all foodborne pathogens. As a result, food safety regulators are regularly confronted with managing outbreaks in the face of very uncertain science. Dr. John Frank, the scientific director of the Canadian Institutes of Health Research, recently commented that most health research is "pretty useless" for solving real health problems. Nowhere is this more evident than in the absence of adequate research on foodborne illness. Useful research on the incidence, economic cost, causes and the management of foodborne illness is urgently required.

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