

Measures to Food Safety

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INTRODUCTION

Food safety is growing in importance as a public health concern for health practitioners and the general public. The Canadian public is exposed more extensively than ever before to exotic foods and pathogens via international travel, changing lifestyles and domestic contact with fresh foodstuff that is imported from faraway lands. Global warming, changing microbial ecology and resistance, and reduced host immunity are also having their effect in increasing the risk. To manage the risk adequately, interventions must be implemented at every point of the food supply chain, from production and processing to distribution, preparation and consumption, at home and in retail food service establishments. The role of government is explained, and the roles of other stakeholders, including physicians, are reviewed briefly [1].

The aging of the population and improvements in health care have led to a larger proportion of individuals in the population surviving, but also being at higher risk of illness from, communicable diseases. Many people (for example, cancer and AIDS patients, the very old, premature infants) have weak immune systems that make them prone to foodborne and/or waterborne infections (eg, *Listeria monocytogenes*) with higher rates of complication.

More extensive international travel increases the likelihood of a traveller bringing into Canada infections that are transmitted easily to others via food or water (eg, *salmonellosis*, *hepatitis A*), and this transmission occurs even before the traveller becomes symptomatic. Immigrant and refugee populations, as potential carriers of infectious agents that are transmissible through food (eg, *typhoid*), have also increased the challenge of communicable disease control. The expanding public awareness of, and contact with, various cultures and exotic foods (eg, melons) have increased the demand for imported products, which are not easily regulated, and are often produced under less hygienic conditions than domestically grown products [2].

Global warming is affecting insect vectors, permitting them to harbour new human pathogens (eg, West Nile virus) or to re-introduce others (eg, malaria). Pathogens are also changing -

becoming more virulent (eg, *E coli* 0157) due to changing ecology or acquiring antimicrobial resistance (eg, *Salmonella typhimurium* DT104) that is facilitated by intensive animal food production practices. Better epidemiological surveillance, bolstered with enhanced laboratory methodology, points increasingly to viruses (eg, *caliciviridae*) as significant causal agents for outbreaks of enteric illness, and to protozoae (cyclospora, cryptosporidium) as the culprits in foodborne outbreaks from a variety of fresh produce. Environmental pollution (eg, *dioxins*, *polychlorinated biphenyls*) and pesticide misuse also contribute occasionally to foodborne hazards. As science and technology improve, pathogen detection and identification allow a better understanding of the routes of transmission, often pointing the finger at food and drinking water.

Changing lifestyles, with less time for meal preparation at home, and more meals eaten at restaurants and fast-food establishments or from take-out/delivery outlets, with laxity in food-handling practices at home and in food service establishments, also contribute to the increased risk of the spread of food borne infections and the complexity of their prevention and control. A more global distribution of foodstuff by a shrinking pool of food processors has greatly augmented the ability of any foodborne infection to spread rapidly to masses of consumers over large geographic areas [3,4].

Today, in view of the complex interaction of factors potentially affecting the risk of foodborne illness, there is no fail-proof way to ensure that all food is kept free from potential sources of contamination, entirely safe until it is consumed. All that can be done is to improve food safety incrementally by systematically concentrating on reducing the risks of contamination at every point of the food supply chain, from production and processing to distribution, preparation and consumption, at home and in retail food service establishments [5].

CONCLUSION

Although previous technological advances such as pasteurization and refrigeration, and more recent improvements such as the

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conception and implementation of Hazard Analysis Critical Control Point (HACCP) systems, which was conceived in the 1960s by the Pillsbury Company and the United States government to help ensure safe food for NASA astronauts, have reduced the likelihood of foodborne diseases, the risks to consumers remain significant. The considerable burden of foodborne illness on Canadian society deserves the attention of governments at all levels, the food industry, and the consumers themselves, who, in the final analysis, are their own last line of defense against foodborne hazards.

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