

Food and Water Contamination

General Information

At this time, people are dependent on others to provide food and water. The food supply industry is dominated by large vendors that serve many areas and many people. Public water supply systems are also quite large, in fact 89% of all U.S. citizens get their water from suppliers serving over 3,300 people. While this system encourages efficiency of supply, it can also spread disease rapidly. In fact, the frequency and severity of water and food supply contamination and associated illness seems to be on the rise in recent years. Over the past 25 years, food poisoning deaths in the United States have increased from 6 deaths per 100,000 cases of food poisoning to 27 per 100,000.

Vulnerability

Food and water supply contamination has not been a significant hazard in the United States during the last century. Over the past decade, however, the vulnerability of our nation's food supply and local communities' water supplies has been increasing. Primary reasons for the increased risk include:

- The globalization of the food market has increased travel time between harvest and consumption.
- Parasites, bacteria, and other organisms have become more resistant to pesticides.
- It can take up to a week for people to show signs of exposure. This makes it difficult to track the source because people tend to forget what they ate. Additionally, more people can contract the illness during the incubation period.

Another impedance to quick diagnosis is that there are new parasites and bacteria being identified all the time. The cyclospora outbreak occurred just three years after it was first identified as a parasite. This means that doctors can be trying to diagnose an illness they have never learned about. Also, many of the tests for contamination do not attempt detect these organisms. Some organisms are so potent that only a few microbes are needed to infect; so even when attempts are made, the contaminated food source can escape detection.

Certain populations are at increased risk to food and water supply contamination. Those most at risk are populations with weakened immune systems, like the elderly, AIDS patients, and cancer patients receiving chemotherapy. Many illnesses can be fought off by healthy people in a week to ten days, but if an organism is not checked by the immune system it can quickly become life threatening.

Effects

The primary effect of a contaminated food or water supply is illness, and sometimes even death. If the contamination leads to an epidemic, it could severely tax the health care system in regards to diagnosis, treatment and prevention. A community could also be effected by loss of productivity and wages; Milwaukee estimated \$37 million lost.

Conclusion

Careful food preparation is the primary way to prevent illness associated with food supply contamination. Most parasites and bacteria stay on the surface of fruits and vegetables if the skin is not broken or damaged. Therefore, proper washing of fruits and vegetables close to the time of

consumption can decrease the risk of exposure. Proper washing means "removing any contaminants physically in a stream of clean, running drinking water". Meats need to be properly and completely cooked to reduce the risk of E-coli and salmonella. Finally, foods must be properly canned in order to avoid botulism.

Safe drinking water requires two critical steps: protection and treatment. Pollution prevention needs to be integrated with safe drinking water programs. Additionally, proper and frequent testing of water supplies is necessary to avoid future outbreaks. All group A public water systems in Washington state (greater than 15 connections) are required to collect samples for coliform bacteria analysis per WAC 246-290.