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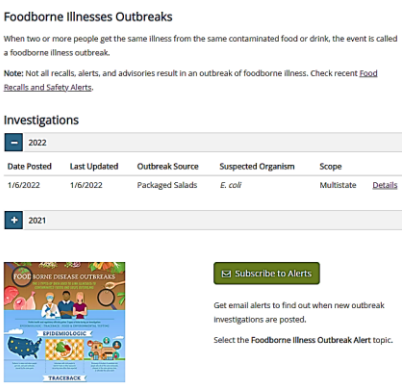
Foodborne Outbreaks and Produce

Foodborne outbreaks remain a public health challenge. The Centers for Disease Control and Prevention (CDC) estimate is that 48 million foodborne illnesses occur annually in this country with 128,000 hospitalizations and 3,000 deaths. Public health agencies continue to track and investigate such outbreaks with the goal of preventing future foodborne illnesses.

Washington State Outbreaks

The Washington State Department of Health (DOH) Foodborne, Waterborne and Enteric Disease Program with assistance from DOH's Center for Public Affairs (C4PA), developed a new page on the DOH website to provide information about current and past foodborne outbreak investigations in the state (see Resources for the link). The site lists outbreaks that involve more than one county in Washington or that involve at least one additional state. There is the option to subscribe for an alert when a new outbreak investigation is posted. Outbreaks involving residents of only one county may be listed on the jurisdiction's webpage.



https://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/FoodborneIllnesses/Outbreaks#hdr37112_2021

Foodborne outbreaks can be detected in several ways. A group that ate together at a restaurant or event may report a cluster of illnesses. Laboratories may detect several occurrence of an unusual pathogen in a short period of time. Interviews related to a notifiable condition may all point to a specific event such as a wedding reception, a sporting event, or animal exposure at a county fair. Recent increased availability of whole genome sequencing has improved the rapid identification of illness clusters occurring nationally due to widely distributed products. DNA-based sequencing gives more detail than serotyping or similar methods.

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Outbreaks Associated with Produce

While a common perception is that most foodborne illnesses are due to chicken, ground beef, eggs, and other animal-based food items, outbreaks continue to occur that are associated with fresh or sometimes frozen produce. Agents in produce-associated outbreaks most commonly include Shiga toxin-producing *E. coli* (STEC), *Listeria*, and *Salmonella*, although outbreaks have also involved other pathogens such as norovirus, hepatitis A virus, *Campylobacter*, *Cryptosporidium*, *Cyclospora*, and *Vibrio*.

In prior outbreaks associated with field-grown produce, the implicated products have included leafy greens (e.g., romaine lettuce), salad mixes, green onions, tomatoes, and cucumbers, as well as papayas, mangos, frozen berries, and melons. Both domestic and imported products have been involved. Infectious food handlers or cross-contamination of produce with meat products during preparation are only some of the possible source of pathogens. Produce may be contaminated with infectious agents through contaminated irrigation or processing water, soil amending with manure, dust from adjacent animal feedlots, domestic or wild animals having access to crop or food storage areas, inadequate access to hygiene for field workers, or contaminated ice or cooling water during transport. Finally, an ill food handler may be implicated.

In January 2022 Washington was one of four states reporting a total of ten cases in an outbreak of *E. coli* O157:H7 associated with packaged salads that included a mix of greens. Two other national outbreaks during the past few months have involved cases of listeriosis attributed to packaged salads. Of the 27 cases in the two listeriosis outbreaks three were fatal.

https://www.cdc.gov/ecoli/2021/o157h7-12-21/map.html

Nationally there were 16 multistate foodborne outbreaks in 2021 with identified sources. Of these, six involved produce and five were associated with salads or other greens. Agents involved in the outbreaks were *E. coli* O157:H7, *Listeria*, and *Salmonella*. Of note, the numbers of outbreak cases associated with salads and greens are typically much smaller than the amount of the specific product linked to the outbreak. Many outbreak-related cases are not identified because an affected person did not seek health care or did not have testing that would identify the agent. This may have been a particular problem during the COVID-19 pandemic, when access to health care was sometimes reduced.

In 2020 there were 17 foodborne outbreaks reporting in Washington. Of these, seven were linked to multistate outbreaks of which five were associated with fresh produce items including mushrooms:

Implicated food	Illness agent	Washington cases	Total cases
Red onions	*Salmonella* Newport	150	1132
Leafy greens	*E. coli* O157:H7	1	40
Romaine	*E. coli* O157:H7	1	18
Mushrooms	*Salmonella* Stanley	5	55
Mushrooms	*Listeria*	1	36

https://www.doh.wa.gov/Portals/1/Documents/5100/420-004-CDAnnualReport2020.pdf

Safe preparation can eliminate some pathogens, but fresh produce can be difficult to wash thoroughly (e.g., green onions, lettuce) so prevention requires safe agricultural practices. The Food and Drug Administration, the responsible federal agency, has prioritized the safety of fresh produce. Each handling step from field to table should avoid cross-contamination or exposure to pathogen. Vegetables and fruits are important components of a balanced diet. Outbreaks are rare, but can cause severe illnesses for some persons. Public health agencies have a critical role in prompt identification and control of foodborne outbreaks.

The importance of comprehensive case-patient interviews

Interviewing patients about the details of what they ate before they got sick is a critical part of any foodborne outbreak investigation. This exposure information is necessary to link food products or other vehicles to disease clusters. Timely and thorough interviews allow foodborne outbreak investigators to identify a source quickly to prevent further illnesses. In addition, the interview provides the patient with important information about their illness including how to prevent spread of the infection to others, how to protect themselves from risky foods, and food preparation safety.

Resources

Washington State Department of Health:

https://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/FoodborneIllnesses/Outbreaks#hdr37112_2021

https://www.doh.wa.gov/YouandYourFamily/IllnessandDisease/FoodborneIllnesses

https://www.doh.wa.gov/DataandStatisticalReports/DiseasesandChronicConditions/CommunicableDiseaseSurveillanceData/AnnualCDSurveillanceReports

Public Health – Seattle & King County:

https://kingcounty.gov/depts/health/communicable-diseases/disease-control/outbreak.aspx

Centers for Disease Control and Prevention:

https://www.cdc.gov/foodborneburden/index.html#:~:text=CDC%20estimates%2048%20million%20people,year%20in%20the%20United%20States.

https://www.cdc.gov/foodsafety/outbreaks/multistate-outbreaks/outbreaks-list.html

https://www.cdc.gov/foodsafety/pdfs/fruit-veggie-safety-H.pdf