**Supplementary Material**

**Epidemiology and Infection**

**Produce-Associated Foodborne Disease Outbreaks and Illnesses, United States, 1998–2013**

**Supplementary Figure 1.** Number of foodborne disease outbreak-associated illnesses and outbreak-associated illnesses attributed to raw produce, United States, 1998–2013.

**Supplementary Table 1:** Number of reported outbreaks attributed to the consumption of raw produce and caused by *Salmonella enterica*, by serotype and food category1, United States, 1998–2013.

|  |  |
| --- | --- |
|  | **Food Category1** |
| **Serotype** | **Fruits** | **Seeded vegetables** | **Sprouts** | **Vegetable row crops** | **Herbs** | **Root and underground vegetables** | **Fungi** | **N/A2** | **Total** |
| Newport | 8 | 12 | 2 | 2 | 2 | 1 | 0 | 4 | 31 |
| Enteritidis | 5 | 2 | 6 | 1 | 0 | 0 | 0 | 8 | 22 |
| Typhimurium | 5 | 3 | 3 | 3 | 0 | 1 | 1 | 3 | 19 |
| Javiana | 4 | 4 | 0 | 2 | 0 | 1 | 0 | 2 | 13 |
| Saintpaul | 2 | 6 | 3 | 0 | 0 | 0 | 0 | 1 | 12 |
| Braenderup | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 6 |
| Muenchen | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 6 |
| Poona | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| Cubana | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| I 4,[5],12:i:- | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 |
| Mbandaka | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 3 |
| Oranienburg | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 3 |
| Anatum | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Baildon | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| Berta | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Hartford | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Panama | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| Senftenberg | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Thompson | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Agona | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Bovismorbificans | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Carrau | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Chester | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Heidelberg | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| IV 50:z4,z23:- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Infantis | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Kottbus | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Litchfield | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Miami | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Montevideo | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Paratyphi B L-Tartrate + (formerly Javiana) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Uganda | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Virchow | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Multiple | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 5 |
| Unspecified | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| **Total** | **49** | **36** | **31** | **8** | **4** | **3** | **1** | **29** | **161** |

1 Interagency Food Safety Analytics Collaboration (IFSAC) food categorization scheme: <https://www.cdc.gov/foodsafety/ifsac/projects/food-categorization-scheme.html>.

2 Food not attributed to a single produce category.

**Supplementary Table 2:** Number of reported outbreaks attributed to the consumption of raw produce, by etiology (confirmed and suspected)1 and food category2, United States, 1998–2013.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Food Category2** |  |  |
| **Etiology1** | **Vegetable row crops** | **Fruits** | **Seeded vegetables** | **Sprouts** | **Fungi** | **Root and underground vegetables** | **Herbs** | **N/A3** | **Total** |
| Norovirus | 119 | 93 | 15 | 0 | 0 | 6 | 1 | 184 | 418 |
| *Salmonella enterica* | 9 | 51 | 36 | 32 | 1 | 3 | 4 | 31 | 167 |
| *Escherichia coli*, Shiga toxin-producing | 40 | 13 | 2 | 6 | 0 | 0 | 0 | 13 | 74 |
| Mycotoxins | 0 | 1 | 0 | 0 | 17 | 0 | 0 | 0 | 18 |
| *Shigella* | 2 | 2 | 1 | 0 | 0 | 0 | 2 | 10 | 17 |
| *Campylobacter* | 9 | 3 | 1 | 0 | 0 | 1 | 0 | 2 | 16 |
| *Cyclospora* | 3 | 7 | 0 | 0 | 0 | 0 | 2 | 2 | 14 |
| Hepatitis A | 4 | 4 | 1 | 0 | 0 | 0 | 0 | 5 | 14 |
| Other viruses | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 7 |
| *Bacillus cereus* | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 6 |
| Other - Chemical/Toxin | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 3 | 6 |
| *Cryptosporidium* | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| *Listeria monocytogenes* | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 4 |
| *Clostridium perfringens* | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 3 |
| *Staphylococcus aureus* enterotoxin | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 3 |
| *Escherichia coli*, Enteropathogenic | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 2 |
| *Escherichia coli*, Enterotoxigenic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| *Giardia* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Heavy metals | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Pesticides | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Plant/Herbal toxins | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Multiple etiologies | 2 | 4 | 0 | 0 | 0 | 1 | 1 | 5 | 13 |
| **Total** | **194** | **188** | **58** | **40** | **20** | **15** | **11** | **265** | **791** |

1 If at least one etiology was laboratory-confirmed, the outbreak was considered to have a confirmed etiology. If no etiology was laboratory-confirmed, but an etiology was reported based on clinical or epidemiologic features, the outbreak was considered to have a suspected etiology.

2 Interagency Food Safety Analytics Collaboration (IFSAC) food categorization scheme: <https://www.cdc.gov/foodsafety/ifsac/projects/food-categorization-scheme.html>.

3 Food not attributed to a single produce category.