Relevant research article summaries

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1. Reynolds, J. and Rajagopal, L., 2017. *Food Safety Practices: Exploratory Assessment of South Carolina Child-Care Facilities Health and Safety Inspection Data*, Food Protection Trends, 37(2): 107–115.

Health inspection reports of 300 South Carolina child-care facilities were evaluated. The three most prevalent food safety violation categories were “lack of labeled food and beverages” at 21.6%, “lack of temperature controls” at 16.6%, and “improper cleaning and sanitizing” at 14.8%.

2. Knox, N.C. et al., 2017. *Unusual Legionnaires’ Outbreak in Cool, Dry Western Canada: An Investigation Using Genomic Epidemiology*, Epidemiology and Infection, 145: 254–265.

Eight cases of Legionnaires’ disease positive for LP1 were found over a 3-week period in November–December 2012. Geomapping of case movements within the affected urban sector revealed a 1.0 km common area of potential exposure, which coincided with multiple active construction sites that used water spray to minimize transient dust.

3. Pouillot, R. et al., 2016. *Infectious Dose of Listeria monocytogenes in Outbreak Linked to Ice Cream, US 2015*, Emerging Infectious Diseases, 22(12): 2113–2119.

The relationship between the number of ingested *Listeria monocytogenes* cells in food and the likelihood of developing listeriosis is not well understood. An outbreak in 2015 linked to ice cream products allowed the examination of the pathogen dosage as ice cream has a long shelf life, and *Listeria* does not grow but survives for long periods in frozen products. The study found even when the distribution of products contaminated with *L. monocytogenes* is widespread, most consumers of the products will not become ill when contamination levels are low and no growth is facilitated.

4. Alarcon, W.A., 2016. *Elevated Blood Lead Levels among Employed Adults, US 1994–2013*, MMWR, 63(55): 59–65.

In 2013, the prevalence rate of BLLs > 10 µg/dL was 20.4 adults per 100 000 employed population. Among adults with known exposure, 93.7% had occupational exposure. Four main industry accounted for most high lead exposure: (1) manufacturing (storage battery, alumina and aluminum production, nonferrous metal rolling); (2) construction (painting and wall covering contractors, highway, street and bridge construction; and residential building construction); (3) services (remediation

services, other amusement and recreation industries, automotive mechanical and electrical repair, fitness and recreational sports centers); (4) Mining (copper, nickel, lead and zinc mining).

5. Tustin, A.W. et al., 2017. *Associations between Unconventional Natural Gas Development and Nasal and Sinus, Migraine Headache, and Fatigue Symptoms in Pennsylvania*, Environmental Health Perspectives, 125(2): 189–197.

Researchers investigated the associations between unconventional natural gas development (UNGD) and symptoms in a cross-sectional study in Pennsylvania. Results showed that UNGD is associated with nasal and sinus, migraine headache, and fatigue symptoms in a general population.

6. Harvey, R.R. et al., 2016. *Foodborne Disease Outbreaks Associated with Organic Foods in the US*, Journal of Food Protection, 79(11): 1953–1958.

Consumer perception often credits organic foods as being safer than conventionally produced foods. Researchers reviewed outbreak data and identified 18 outbreaks caused by organic foods from 1992 to 2014, resulting in 779 illnesses, 258 hospitalizations, and 3 deaths; 56% of outbreaks occurred from 2010 to 2014. *Salmonella* sp. (44%) and *E. coli* O157:H7 (33%) were the most commonly occurring pathogens. Nearly half of the organic food outbreaks were associated with produce. It is possible that some farming methods common in organic production might allow for a higher pathogen load for certain food. For example, synthetic fertilizers cannot be used in organic production and composted manure or raw manure is used. Data showed *Salmonella* sp. and *E. coli* can survive for a long time in compost and are capable of regrowth in finished compost. Together, produce and unpasteurized dairy products accounted for 78% of organic food outbreaks identified.

7. Rumble, C. et al., 2017. *Role of Food Handlers in Norovirus Outbreaks in London and South East England, 2013–2015*, Journal of Food Protection, 80(2): 257–264.

A case series of 17 outbreaks representing more than 606 cases were examined. In five outbreaks, symptomatic food handlers were tested and found positive for norovirus. In four outbreaks, symptomatic food handlers were not tested. Asymptomatic food handlers were tested in three outbreaks but positive for norovirus in one only. Environmental sampling did not identify the causative agent in any of the outbreaks included in the analysis.

8. Medeiros, L. and LeJeune, J., 2016. *Why Do Consumers Drink Unpasteurized Milk? A Preliminary Mental Model*, Food Protection Trends, 36(6): 428–442.

Although the benefits of milk consumption are documented, there have always been concerns about the safety of milk and dairy products. It appears that consumer concerns over food safety and milk choice continue. These issues are important because many of them are considered “outrage factors” of risk perception: involuntary, unfamiliar, artificial, controlled by others, offer little benefits to the individual, or have delayed effects. In spite of known public health hazards associated with the consumption of unpasteurized milk, some consumers continue to accept personal health risk because they believe there are health benefits, such as fewer allergies and resolution of gastrointestinal malabsorption, that outweigh the risks from foodborne infections. Rural residents shared major worldview characteristics such as a conservative political philosophy that formed their mental model of milk and dairy preference. Although foodborne illness is a serious health concern, they believe that food safety information from media was biased. Urban unpasteurized milk participants, however, believe that food-borne illness is not a serious health issue, and that government institutions are not trustworthy, and they make their own decisions regarding the type of milk and dairy they consume without the input of referent others or information they might find in media channels. They utilize food safety information only to the extent they feel necessary to get the facts they need, but they are also characterized by low knowledge of food safety.

9. Short, D.B. et al., 2016. *Fast Food Premium Toys as a Significant Source of Lead and Chromium to the Environment*, Journal of Toxicology and Environmental Health Sciences, 8(7): 68–75.

The US Federal Trade Commission describes a “Premium” as any non-food item distributed in connection with a company’s food products. The first toy or premium was delivered with “Happy Meal” in 1979. Fast Food Premiums (FFP) are now in use by most fast food restaurants around the world. Testing of FFP toys found they can be a significant source of lead and chromium to the environment and should be treated as E-waste, to be disposed of in an appropriate manner along with other electronics. Low levels of barium, cadmium, chromium and mercury were detected. 177 mg/L of lead, over 35 times the permissible levels was also found.

10. Raymond, J. and Brown, M.J., 2017. *Childhood Blood Lead Levels in Children Aged <5 Years- US 2009–2014*, MMWR, 66(3): 1–7.

Prevalence data indicated that 76 680 children aged <5 had BLLs 5–9 µg/dL in 2014. Most new cases were identified during the warmer months. Researchers believe windows possibly painted with lead-based paint are opened and closed, creating lead dust in the air and on the ground. Also repainting and renovation activities are more common in warmer months. Increased presence and activity of children in and around the home might lead to children having more contact with contaminated dust, surfaces and soil.

11. Amoureux, L. et al., 2017. *Nosocomial Infections with IMP-19-Producing Pseudomonas aeruginosa Linked to Contaminated Sinks, France*, Emerging Infectious Diseases, 23(2): 304–307.

Environmental sampling after an outbreak affecting seven patients linked *Pseudomonas* in shower drains and sinks to infected individuals using the PFGE profile. Transfer of pathogens to patients might have occurred in several ways. Water from faucets is directed straight into the drain, resulting in splashing that can lead to contamination of an area <1 m from the sink and patients can be contaminated when they brush their teeth, wash their hands, or take a shower. Healthcare workers are also at risk for hand contamination, which might lead to transfer of pathogens to patients during care.

12. Kollanus, V. et al., 2017. *Mortality Due to Vegetation Fire-Originated PM_{2.5} Exposure in Europe—Assessment for the Years 2005 and 2008*, Environmental Health Perspectives, 125(1): 30–37.

Researchers assessed mortality attributable to short-term exposures to vegetation fire-originated PM_{2.5} in different regions of Europe. In 27 countries, an estimated 1483 and 1080 premature deaths were attributable to the vegetation fire-originated PM_{2.5} in 2005 and 2008, respectively.

13. Honish, L. et al., 2017. *E. coli O157:H7 Infections Associated with Contaminated Pork Products—Alberta Canada, July–October 2014*, MMWR 65(52): 1477–1481.

During July to October 2014, an outbreak of 119 *E. coli* O157:H7 infections occurred in Alberta. Most patients reported having consumed meals containing pork at Asian-style restaurants in multiple geographically diverse Alberta cities. *E. coli* O157:H7 contaminated pork and pork production environments and mishandling of pork products were identified at all key points in the implicated Alberta pork distribution chain, including slaughter, processor, retail, and restaurant facilities. However, the originating source or sources of the contamination were not identified. This outbreak represented the second largest foodborne and third largest overall *E. coli* O157:H7 outbreak in Canadian history, after a foodborne outbreak associated with salami produced in BC in 1999 and a waterborne outbreak in Walkerton, Ontario, in 2000.

14. Sinclair, R.G. et al., 2016. *Efficacy of Treatment of Reusable Grocery Bags with Antimicrobial Silver to Reduce Enteric Bacteria*, Food Protection Trends, 36(6): 458–464.

Reusable grocery bags are seldom washed in homes and can become contaminated with enteric bacteria during use in grocery shopping. A study was conducted to determine the efficacy of a cloth fiber grocery bag impregnated with silver in controlling bacteria and viruses. Results showed that after 4 months, the treatment was found to reduce *E. coli*, *Salmonella*, and *Staphylococcus aureus* counts by more than 99.9% within 2 hours and the MS2 virus and murine norovirus by 99.5%. Researchers concluded that the broad antimicrobial properties of silver make it a useful component of commercially available reusable grocery bags.