Relevant research article summaries

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1. Dyer, J.L., et al., 2014. *Rabies surveillance in the US during 2013*, JAVMA, 245(10): 1111–1123.

In 2013, 53 jurisdictions reported 5865 rabid animals and 3 human rabies cases to the CDC in the United States, representing a 4.8% decrease from 2012. Ninety-two percent of reported rabid animals were wildlife, mainly raccoons (32.4%), bats (27.2%), skunks (24.7%), foxes (5.9%), cats (4.2%), cattle (1.5%), and dogs (1.5%). Over the last 10 years, 21% of human rabies cases acquired domestically resulted from the transplantation of organs or tissues from donor patients who died of rabies but in whom the disease was not diagnosed until rabies developed in transplant recipients.

2. Webb, L.M., et al., 2014. *Outbreak of cryptosporidiosis among responders to a rollover of a truck carrying Calves – Kansas, April 2013*, MMWR, 63(50): 1165–1188.

Two cases of cryptosporidiosis among emergency responders at a tractor-trailer rollover accident were recorded. The tractor was carrying calves. This was the first case of law enforcement and volunteer emergency responders contracting the disease solely due to direct contact with animals and their feces.

3. Chafe, Z.A., et al., 2014. *Household cooking with solid fuels contributes to ambient PM2.5 air pollution and the burden of disease*, Environmental Health Perspectives, 122(12): 1314–1320.

This study found PM2.5 emissions from household cooking constituted an important portion of ambient air PM2.5 concentrations in many areas including India and China. Researchers estimated that cooking with solid fuels caused the loss of 370,000 lives and 9.9 billion disability-adjusted life years globally in 2010.

4. Pan, A., et al., 2014. *Incense use and cardiovascular mortality among Chinese in Singapore: the Singapore Chinese health study*, En. Health Perspectives, 122(12): 1279–1284.

This study found long-term exposure to incense burning in the home environment was associated with an increased risk of cardiovascular mortality in the study population.

5. Pons, W., et al., 2014. *Experience, training and confidence among small, non-community drinking water system operators*

***in Ontario, Canada*, Journal of Water and Health, 12(4): 782–790.**

A cross-sectional survey of 332 small noncommunity drinking water operators in Ontario was conducted in 2011. The study found that 16% of respondents had less than one year's experience as a water operator, and 60% reported that being a water operator was not a chosen profession. Only 37% reported completing operator training.

6. Weng, S., et al., 2014. *The presence of pharmaceuticals and personal care products in swimming pools*, Environmental Science & Technology Letters, 1: 495–498.

This study identified the presence of DEET, caffeine, and TCEP, a flame retardant, in pool water. Although DEET would be introduced by rinsing from skin, caffeine would be introduced via urine from swimmers. As pool water may not be changed for months, compounds that express a low potential for liquid to gas transfer and a slow reaction rate with chlorine have the potential to accumulate in pools.

7. Ford, L., et al., 2014. *Sequelae of foodborne illness caused by 5 pathogens, Australia, circa 2010*, Emerging Infectious Diseases, 20(11): 1865–1871.

Using Monte Carlo simulation, researchers estimated there were 35,840 illnesses, 1,080 hospitalizations, and 10 deaths due to foodborne gastroenteritis-associated sequelae. *Campylobacter* spp. infection was responsible for 80% of incident cases.

8. Farnham, A., et al., 2014. *Legionnaires' disease incidence and risk factors, New York, NY 2002–2011*, Emerging Infectious Diseases, 20(11): 1795–1802.

Researchers examined risk factors for Legionnaires' disease in New York from 2002 to 2011. The results found that more than 88% of case patients had >1 underlying medical condition that is recognized as a risk factor for infection. A history of smoking and diabetes were the most commonly reported risk factors. Socioeconomic factors were also associated with increased incidence of the disease, with a distinct gradient in incidence according to neighbourhood-level poverty. This ranged from 3.0 average yearly cases/100,000 population in the highest-poverty areas to 1.2 in the lowest poverty areas. There were also certain occupations that may be associated with increased risk for community-acquired legionellosis. Occupations that may involve working with machinery or being outdoors (transportation, construction, and

manufacturing) were associated with increased risk of acquiring infection. The increased risk associated with cleaning and janitorial work may involve greater exposure to aerosolized water in the air.

9. Wood, J.L., et al., 2015. *Microbiological survey of locally grown lettuce sold at farmers' markets in Vancouver, BC*, Journal of Food Protection, 78(1): 203–208.

Fresh green, red, and romaine lettuce samples were obtained from five regional farmers' markets in 2012. Testing found that the lettuce samples had a mean aerobic colony counts of 6.3 log CFU/g. Coliforms were detected in 72% of samples with a median concentration of 10.9 CFU/g. Thirteen percent of the samples were found to harbour *E. coli* with a median level of 0.7 log CFU/g.

10. Fritschel, E., et al., 2015. *Fatal legionellosis after water birth, Texas USA 2014*, Emerging Infectious Diseases, 21(1): 130–132.

A fatal infection with *Legionella pneumophila* serogroup 1 occurred in a neonate after a water birth. Two weeks before the child's birth, a licensed midwifery center delivered and filled a recreational-grade, jetted, soft-sided, collapsible tub with water from a private borehole well. Commercially available water purifying spa drops were added to the water. The drops were enzyme-based and did not contain chlorine. The well water also did not undergo filtration or disinfection. The water circulated in the tub at 37°C until two days before the birth. At that time, the tub was drained, refilled with well water, and left to circulate at 37°C until the delivery. The infant was born at term by spontaneous vaginal birth with no reported complications. Findings revealed a gap in the standardization and implementation of infection control practices for midwives during home water births.

11. Mungal, E.G., et al., 2015. *Increased outbreaks associated with non-pasteurized milk, US, 2007–2012*, Emerging Infectious Diseases, 21(1): 119–122.

The number of U.S. outbreaks caused by nonpasteurized milk increased from 30 in 2007–2009 to 51 during 2010–2012. Most outbreaks were caused by *Campylobacter* spp. (77%) and by nonpasteurized milk purchased from states in which nonpasteurized milk sale was legal (81%). Regulations to prevent distribution of non-pasteurized milk are needed.

12. Kanchongkittiphon, W., et al., 2015. *Indoor environmental exposures and exacerbation of asthma: an update to the 2000 review by the Institute of Medicine*, Environmental Health Perspectives, 123(1): 6–20.

Sixty-nine articles were reviewed, concluding a causal relationship with exacerbation for indoor dampness or dampness-related agents, endotoxin, and environmental tobacco smoke (in preschool children); and limited or suggestive

evidence for association with exacerbation for indoor culturable *Penicillium*, nitrogen dioxide, rodents, feather/down pillows, dust mites, cockroaches, dogs, and dampness-related agents.

13. Rabinowitz, P.M., et al., 2015. *Proximity to natural gas wells and reported health status: results of a household survey in Washington County, Pennsylvania*, Environmental Health Perspectives, 123(1): 21–26.

Researchers surveyed 492 people in 180 households with ground-fed wells in an area of active natural gas drilling. Gas well proximity for each household was compared with the prevalence and frequency of reported dermal, respiratory, gastrointestinal, cardiovascular, and neurological symptoms. Results found the reported health symptoms per person were higher among residents living < 1 km from the nearest gas well compared with > 2 km from the nearest gas well.

14. Schmidt, C.W. 2015. *The challenge of regulating arsenic in rice*, Environmental Health Perspectives, 123(1): A16–A19.

Rice is unusually efficient at absorbing arsenic from soil, up to 10 times more than other crops such as wheat. Moreover, rice flour and syrup are used in many processed foods, including baby foods, so exposures are not limited to people eating the grain itself. It is estimated that 95% of the arsenic intakes among Europeans were from food and half of that from rice and rice products. White rice makes up 79% of the international market. The highest arsenic levels are consistently found in brown rice. That is because rice kernels concentrate arsenic in the thin outer layer that gives brown rice its color and is removed to produce white rice. Organic brown rice syrup, a popular sweetener often touted as a healthier alternative to high-fructose corn syrup, had been found to contain a similar range of arsenic levels as brown rice grain. Regulating a naturally occurring element in a widely eaten food is not easy. Arsenic levels can vary widely in rice from different countries and among different rice cultivars.

15. Brown, L.G., et al., 2014. *Restaurant manager and worker food safety certification and knowledge*, Foodborne Pathogens and Disease, 11(11): 835–884.

Certification of food workers entails passing a food safety knowledge examination and is based on the assumption that certification leads to greater food safety knowledge. CDC conducted a study to examine the relationship between food safety knowledge and certification. Analyses showed that certified managers and workers had greater food safety knowledge than noncertified managers and workers. Additionally, managers and workers whose primary language was English had greater food safety knowledge than those whose primary language was not English. Other factors associated with greater food safety knowledge included working in a chain restaurant, working in a larger restaurant, having more experience, and having more duties.

16. McIntyre, L., et al., 2014. *Survey of observed vendor food-handling practices at farmers' markets in BC, Canada*, *Food Protection Trends*, 34(6): 397–408.

Observations were made in seven farmers' markets and 2121 vendors. No hand washing occurred during more than six hours of direct observation and gloves were not used appropriately. Many vendors handled money and food without washing their hands, and offered samples for tasting incorrectly or did not have the required hand washing stations at their stalls. Although cold storage temperatures were maintained mechanically or with ice packs, four vendors did not have their food under effective temperature control. Three market managers expressed food safety concerns that included poor food safety practices, poor hand washing, and food/money cross-contamination issues. Although most vendors and markets comply with written food safety guideline requirements, direct observation suggested that improvements in the areas of hand washing and temperature control are needed.

17. Penning, T.M., et al., 2014. *Environmental health research recommendations from the inter-environmental health sciences core center working group on unconventional natural gas drilling operations*, *Environmental Health Perspectives*, 122(11): 1155–1159.

Unconventional natural gas drilling operations (UNGDO) that include hydraulic fracturing and horizontal drilling, supply

an energy source that is potentially cleaner than liquid or solid fossil fuels. However, significant concerns have arisen due to the lack of research on the public health impact of UNGDO. Environmental health Sciences Core Centers Working Group concluded that a potential for water and air pollution exists that might endanger public health and that the social fabric of communities could be impacted by the rapid emergence of drilling operations.

18. Simmons, C., et al., 2014. *Listeria monocytogenes and Listeria spp. contamination patterns in retail delicatessen establishments in three US states*, *Journal of Food Protection*, 77(11): 1929–1939.

Sampling in 15 delis found 6.8% of sponges were positive for *L. monocytogenes*. For food contact and nonfood contact surfaces, 9.5% were positive for the pathogen with 9 of 30 delis showing low *L. monocytogenes* prevalence (< 1%) for all surfaces. A total of 245 *Listeria* spp. isolates were found. PFGE showed that for 12 of 30 delis, one or more PFGE types were isolated on at least three separate occasions, providing evidence for persistence of a given *Listeria* subtype in the delis.