Relevant research article summaries

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1. Pinault, L. et al., 2017, *Exposure to fine particulate matter air pollution in Canada*, Health Reports, 28(3): 9–16.

In Canada, PM_{2.5} exposure was 1.61 µg/m³ higher for visible minority (versus white) populations, and 1.55 µg/m³ higher for immigrants (versus nonimmigrants). When the relatively high percentages of these groups in large cities were taken into account, exposure differences in urban cores were much smaller. In urban cores, residents of low-income households had marginally higher exposure than did people who were not in low-income households.

2. White, A.J., and Sandler, D.P. 2017, *Indoor wood-burning stove and fireplace use and breast cancer in a prospective cohort study*, Environmental Health Perspectives, doi: 10.1289/EHP827.

This is a prospective study on the use of an indoor wood-burning stove/fireplace at least once a week, and burning either wood or natural gas/propane was associated with a modestly higher risk of breast cancer.

3. De Roos, A.J. et al., 2017, *Review of epidemiological studies of drinking water turbidity in relation to acute gastrointestinal illness*, Environmental Health Perspectives, doi: 10.1289/EHP1090.

The observed associations suggested a detectable incidence of waterborne AGI from drinking water in the systems and time periods studied. High turbidity (> 1 NTU) can result in AGI. A lag time between 6 and 10 days was identified.

4. Su, C.-P. et al., 2017, *Occupational animal exposure among persons with campylobacteriosis and cryptosporidiosis—Nebraska 2005–2015*, MMWR, 66(36): 955–958.

US national incidence rates for *Campylobacter* and *Cryptosporidium* in 2015 were 17.7 and 3.0 per 100 000, respectively. Nebraska was among the states with the highest incidence for both pathogens (26.6 and 6.01). Transmission via contact with live animals or animal products including occupational exposure were examined as animal agricultural and associated industries are an important part of the state's economy. This study found that occupational animal exposure was identified among 16.6% of Nebraska residents with campylobacteriosis and 8.7% with cryptosporidiosis. Cattle were the most common animal types mentioned among workers for both diseases. Among workers with campylobacteriosis, poultry and swine were the second and third most commonly reported animal types in both industries.

5. Bashash, M. et al., 2017, *Prenatal fluoride exposure and cognitive outcomes in children at 4 and 6–12 years of age in Mexico*, Environmental Health Perspectives, doi: 10.1289/EHP655.

Research attempted to estimate the association of prenatal exposure to fluoride with offspring neurocognitive development. Fluoride levels in archived urine samples taken from mothers in Mexico during pregnancy and from their children were examined. Data on 299 mother–child pairs showed an increase in maternal urine fluoride of 0.5 mg/L predicted 3.15 and 2.50 lower offspring General Cognitive Index (GCI) and IQ scores, respectively.

6. Rahman, S.M. et al., 2017, *Manganese in drinking water and cognitive abilities and behavior at 10 years of age: A prospective cohort study*, Environmental Health Perspectives, doi: 10.1289/EPH631.

Elevated prenatal water Mn exposure (0.2 to 0.34 mg/L) was positively associated with cognitive function in girls. Early-life water Mn exposure appeared to adversely affect children's behaviour.

7. Mantha, M. et al., 2017, *Estimating inorganic arsenic exposure from US rice and total water intakes*, Environmental Health Perspectives, doi: 10.1289/EHP418.

It was estimated that the mean inorganic arsenic (iAs) exposures from drinking water and rice in the United States were 4.2 µg/day and 1.4 µg/day, respectively, for the entire US population. An average consumer in the United States drinking 1.5 L of water daily is exposed to approximately the same amount of iAs as a mean Asian and Pacific consumer is exposed to from rice.

8. Forzieri, G. et al., 2017, *Increasing risk over time of weather-related hazards to the European population: A data-driven prognostic study*, Lancet Planet Health, 1: e200–208.

Researchers found weather-related disasters could affect about two-thirds of the European population annually by the year 2100, with up to 152 000 deaths. The projected changes are dominated by global warming, accounting for more than 90% of the rise in risk, mainly through a rise in the frequency of heatwaves.

9. Guo, Y. et al., 2017, *Heat wave and mortality: A multi-county, multicomunity study*, Environmental Health Perspectives, doi: 10.1289/EHP1026.

Researchers examined the impacts of heat waves on mortality with lag effects internationally. Data showed heat waves had significant cumulative associations with mortality in all countries.

The association between heat waves and mortality appeared acutely and lasted for 3 and 4 days. Heat waves had higher associations with mortality in moderate cold and moderate hot areas than cold and hot areas.

10. Burgos, W.D. et al., 2017, *Watershed-scale impacts from surface water disposal of oil and gas wastewater in Western Pennsylvania*, Environmental Science & Technology, 51(15): 8851–8860.

Combining horizontal drilling with high-volume hydraulic fracturing has increased extraction of hydrocarbons from low-permeability oil and gas formations across the United States, accompanied by increased wastewater production. Study of sediments from a river found high level of endocrine-disrupting chemicals, polycyclic aromatic hydrocarbons, and elevated levels of radium. The highest concentrations of these pollutants were found in lake sediment layers deposited 5 to 10 years ago during a peak period of fracking wastewater disposal.

13. Soda, E.A. et al., *Vital signs: Health care-associated Legionnaires' disease surveillance data from 20 states and a large metropolitan area—US, 2015*, MMWR, 66: 1–6.

Researchers examined surveillance data from 21 jurisdictions (20 US states and one large metropolitan area). A total of

2809 confirmed Legionnaires' disease (LD) cases were reported, including 85 definite and 468 possible healthcare-associated cases. Among definite healthcare-associated cases, 88% occurred in persons aged >60 years. The case fatality rate was 25% for definite and 10% for possible healthcare-associated LD.

14. Clemens, T. et al., 2017, *Maternal exposure to ambient air pollution and fetal growth in North-East Scotland: A population-based study using routine ultrasound scans*, Environmental International, 107: 216–226.

Exposure to PM₁₀, PM_{2.5}, and NO₂ was associated with reductions in measurements at birth and biparietal diameter from late second trimester onwards.

15. Su, C.-P. et al., 2017, *Occupational distribution of campylobacteriosis and salmonellosis cases—Maryland, Ohio and Virginia 2014*, MMWR, 66(32): 850–853.

A review of the data showed persons in farming, fishing, and forestry occupations and healthcare and technical occupations were at increased risk for both campylobacteriosis and salmonellosis. Persons in food preparation and serving-related occupations and personal care and service occupations were also at higher risk for salmonellosis.