

One Health

To: Chair and Members of the Board of Health

Meeting Date: December 4, 2019

Report No. **BH.01.DEC0419.R23** Pages: 6

Prepared By: Jessica Morris, Manager Environmental Health

Approved By: Christopher Beveridge, Director Health Protection

Submitted By & Signature: *Original signed document on file*

Dr. Nicola J. Mercer, MD, MBA, MPH, FRCPC
Medical Officer of Health & CEO

Recommendations

It is recommended that the Board of Health:

1. Receive this report for information.

Key Points

- One Health is a term used to explain the human-animal-environmental health connection. When combined with health equity, all people have a fair chance at reaching their full health potential and are not disadvantaged by social, economic and environmental conditions.
- Understanding exposure to chronic and acute disease-causing factors, including those associated with animal and environmental exposures, can support Public Health efforts to inform residents of potential risks to their health.
- Collaborating with influential community partners such as Public Health Ontario (PHO), University of Guelph Centre for Public Health and Zoonosis (CPHAZ) and the Ontario Veterinary College (OVC), the Wellington-Dufferin-Guelph Public Health

(WDGPH) One Health program will ensure evidence-based decision-making is informed by current evidence and best practice from human, animal and environmental health partners.

Discussion

In 400 BC, the famous Greek physician Hippocrates urged physicians to consider all aspects of their patients' lives, including their environment. From the late 1800s to mid-1900s this idea gained momentum, creating the term 'zoonosis' as infections acquired from animals. In the 2000s, the Wildlife Conservation Society defined the phrase *One World One Health*.^{1,2} The *One World, One Health* concept is a trademark of the Wildlife Conservation Society that established an interdisciplinary and cross-sectoral approach to prevent epidemic or epizootic disease and to maintain ecosystem integrity.^{1,2,3} The *One World, One Health* concept is now commonly called One Health.^{4,5}

One Health is an approach to health which includes the well-being of animals, humans and the environment, known as the One Health triad. It requires the understanding that all three are interconnected and must be considered to achieve optimal health outcomes. It asserts that collaboration (involving veterinarians, physicians, sociologists, ecologists, biologists and others) is needed at the local, national and international levels to prevent disease and promote ecosystem health.^{1,3,4,5}

As the world becomes increasingly connected, One Health is a global concept with local health impacts. High speed global travel makes it easy to now spread diseases rapidly across the globe.⁶ For example, the 2003 SARS (severe acute respiratory syndrome) outbreak originated in the Guangdong province of China that had significant local impacts on the Canadian public health system, especially in Toronto.⁶ The 2014-2016 Ebola Outbreaks in West Africa is a tragic and recent example of how the One Health triad impacted a continent as well as other countries. This was the deadliest occurrence of Ebola since the disease was identified and started with the introduction of the virus from animals into the human population. The consumption of traditional food sources, including bush meat, continue to have negative human health impacts.⁷ Global climate change and its impact on environmental factors have the ability to radically influence One Health as disease vector species extend their habitat into new areas and thus increase the risk of vector-borne disease transmission among naive populations.⁸

Why One Health?

At WDGPH, One Health means an understanding of the human-animal-environmental health triad, which when combined with health equity, allows all people (individuals, groups and communities) to reach their full health potential and where individuals are not disadvantaged by social, economic and environmental conditions. A wide range of factors are known to have an impact on human health, including access to walkable neighborhoods, affordable nutritious food, safe housing and exposures to vectors such as rodents, ticks, mosquitoes and wildlife.

Understanding how exposure to chronic and acute disease-causing factors affect human health enables Public Health to inform residents of potential risks to their health and provide recommendations aimed at reducing negative health impacts. For example, climate change is an increasing concern to Public Health as it may impact the normal habitat of disease vectors such as mosquitoes and ticks. Extreme weather events, such as flooding and heat waves, can also negatively impact human health. Public Health provides municipal and health system partners with Heat and Cold alert messaging to support agencies who have direct contact with vulnerable populations. Public Health also works to prevent vector-associated disease by monitoring vector prevalence and implementing relevant control measures, such as public education and catch basin larviciding. These issues are all interconnected and demonstrate the importance of a One Health model.

On Tuesday, November 12, 2019, WDGPH hosted a Radon Information Night, whereby other information and services were offered to capture the public's attention, in hopes to promote the One Health concept. The event booths included: rabies prevention; tick identification tips and Lyme disease prevention; inspection disclosure portal demo (Check Before You Choose); tobacco/cannabis information and the option to be immunized against influenza. There were 129 attendees, whereby 34 received an influenza immunization. WDGPH will plan future events throughout the Wellington, Dufferin, Guelph (WDG) area.

Next Steps

WDGPH maximizes local partnerships to enhance the local One Health Community of Practice (CoP). The CoP is a partnership between PHO, CPHAZ, and Central West Public Health Units. This is also a two-tiered CoP, having infectious disease physicians

form the main steering committee and public health professionals supporting with resource creation and information sharing via quarterly webinars. The inaugural webinar was in October 2019. Some next steps include:

- **CPHAZ:** Host a One Health Symposium in May followed by a One Health Poster Day in November. These events are expected to be held on an annual basis.
- **Central West Public Health Units:** WDGPH, Hamilton, Niagara, Halton, Haldimand Norfolk and Brant County collaborate to distribute a Bi-annual One Health Newsletter to community health professionals with an interest in One Health.
- **Ontario Animal Health Network (OAHN):** Two editions of the OAHN Public Health Report has been published highlighting where animal health has overlapped public health that year.
- **University of Guelph:** Introducing undergraduate, graduate, and PhD One Health degree program programs in the future. No timeline available.
- **Local Veterinarians;** WDGPH continues to provide low cost rabies clinics in the WDG area, while also providing information on safe well water, ticks and Lyme disease, and rabies prevention to human clients.

Conclusion

One Health is an ancient concept that is gaining modern day traction as a field of study and as a Public Health initiative. The human health, animal health and environmental health triad forms the foundation for a One Health approach to Public Health delivery. By working with influential community partners such as PHO and CPHAZ, the WDGPH One Health program will continue to be informed by current evidence and best practice from human, animal and environmental health partners in order to inform evidence-based decision-making. This will allow WDGPH to have the greatest potential positive impact on area residents.

Ontario Public Health Standard

Chronic Disease Prevention and Well-Being Standard

Food Safety Standard

Healthy Environments Standard

Healthy Growth and Development Standard

Infectious and Communicable Diseases Prevention and Control Standard

Safe Water Standard

WDGPH Strategic Direction(s)

- ☒ **Health Equity:** We will provide programs and services that integrate health equity principles to reduce or eliminate health differences between population groups.
- ☒ **Organizational Capacity:** We will improve our capacity to effectively deliver public health programs and services.
- ☒ **Service Centred Approach:** We are committed to providing excellent service to anyone interacting with WDG Public Health.
- ☒ **Building Healthy Communities:** We will work with communities to support the health and well-being of everyone.

Health Equity

Health equity is the fair opportunity for everyone to meet their health potential. Health inequities result from social, economic or environmental disadvantage and therefore are closely related to the social determinants of health. Social determinants affect individual behaviours in ways that affect health – such as exposure to healthy and unhealthy environments as influenced by social, economic, geographic and other factors. One Health, using the One Health triad, can promote health equity by: identifying environmental conditions that expose vulnerable populations to harmful substances; promoting a healthier built environment; and by advocating for services that address health equity for vulnerable populations.

References

1. Contributing to One World, One Health: A Strategic Framework for Reducing Risks of Infectious Diseases at the Animal–Human–Ecosystems Interface 14 October 2008. [cited 2019 Nov 19] Retrieved from <http://www.fao.org/3/aj137e/aj137e00.pdf>
2. Wildlife Conservation Society (2004). 'Conference Summary. One World One Health: Building Interdisciplinary Bridges to Health and Globalized World.' The Rockefeller University: New York, NY. [cited 2019 Nov 19] Retrieved from http://www.oneworldonehealth.org/sept2004/owoh_sept04.html

3. Wildlife Conservation Society 2009. One World, One Health Summary of the FAO/OIE/WHO document. [cited 2019 Nov 19] Retrieved from <https://www.oie.int/doc/ged/D6296.PDF>
4. World Health Organization 2017. One Health. [cited 2019 Nov 19] Retrieved from <https://www.who.int/features/qa/one-health/en/>
5. Centers for Disease Control and Prevention 2019. One Health. [cited 2019 Nov 19] Retrieved from <https://www.cdc.gov/onehealth/index.html>
6. World Health Organization 2019. International travel and health, SARS (Severe Acute Respiratory Syndrome). [cited 2019 Nov 19] Retrieved from <https://www.who.int/ith/diseases/sars/en/>
7. Federation of European Microbiological Societies 2019. One Health: Ebola - bats, bushmeat and viral transmission. [cited 2019 Nov 19] Retrieved from <https://fems-microbiology.org/one-health-ebola-bats-bushmeat-and-viral-transmission/>
8. Essack, Sabiha. 2018. The Lancet. Vol 2 June 2018. Environment: the neglected component of the One Health triad. [cited 2019 Nov 19] Retrieved from <https://www.thelancet.com/action/showPdf?pii=S2542-5196%2818%2930124-4>

Appendices

None.