

## **Brief to the Parliamentary Committee Standing Committee on Health (HESA) Regarding M-132, the motion to study federally-funded health research**

### **Neglected Tropical Diseases, Gender Equality and Reduction of Maternal Mortality**

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#### **Introduction**

The Canadian Partnership for Women and Children's Health (CanWaCH) is a collaboration of Canadian organizations that strives to realize a world where every woman and child survives and thrives. By leveraging the power of partnerships, CanWaCH is pertinent to Canada's contribution to achieving the United Nations Sustainable Development Goals (SDGs), in particular SDG number three (to ensure healthy lives and promote well-being for all at all ages) and SDG number five (achieve gender equality and empower all women and girls).

#### **Addressing Neglected Tropical Diseases is critical to advance gender equality and reduce maternal mortality**

According to the World Health Organization (WHO), neglected tropical diseases (NTDs) are a group of seventeen communicable parasitic and bacterial diseases that prevail in tropical and subtropical conditions in 149 countries<sup>1</sup>. (Refer to Annex 1 for a summary of NTDs.) The debilitating effects of NTDs on people cost economies billions of dollars every year and affect approximately 1 billion individuals who are already living in impoverished conditions<sup>1</sup>.

Disease related morbidities are debilitating and trap individuals in the cycle of poverty. However, high impact, low cost treatments are available and can prevent the transmission of several NTDs. In 2016 alone, one billion people were treated for NTDs using donated treatments delivered largely by community volunteers.

Global elimination and control of NTDs is driven by a partnership established by the London Declaration in 2012<sup>2</sup>, which brought together the World Health Organization, donors, governments, pharmaceutical companies, non-governmental organizations and academic research partners. Signatory countries include Japan, Germany, the United Kingdom and the United States.

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<sup>1</sup>WHO. (n.d.). Neglected tropical diseases. Retrieved January 15, 2018, from [http://www.who.int/neglected\\_diseases/diseases/en/](http://www.who.int/neglected_diseases/diseases/en/)

<sup>2</sup>The London Declaration. <http://unitingtocombatntds.org/london-declaration-neglected-tropical-diseases/>. Retrieved January 16, 2018.

## Intersection of NTDs and women and children's health:

The recent Canadian focus on maternal, newborn and child health has addressed many of the important factors that contribute to ill health, poor birth outcomes and risky pregnancies. Through funding for research and development as well as implementation, Canada has shown global leadership in improving the lives of women and children in developing countries. Canada has also championed action on some of the neglected tropical diseases that impact women and children, in particular deworming and Vitamin A supplementation.

In addition to the control of soil transmitted helminths (intestinal worms,) other NTDs have been shown to have a particular impact on women, children and adolescents. Managing disease morbidity and disability prevention are critical for improving public health and mitigating the risk of diminished economic opportunities. Furthermore, since women are burdened with the task of collecting water in many developing countries where NTDs are prevalent, the chances of contracting waterborne NTDs, soil transmitted helminths and schistosomiasis is higher for women<sup>3</sup>.

The presence of soil transmitted helminths (STH) and schistosomiasis during pregnancy contribute to low birth weight, increased maternal morbidity and moderate to severe anemia during pregnancy; one of the leading causes of preventable maternal death.<sup>45</sup> It is estimated that between 33 – 75% of girls and women with schistosomiasis infection also suffer from female genital schistosomiasis (FGS) meaning that up to 150 million girls in Africa are affected, suffering from bleeding, pain, depression and stigma<sup>6</sup>. Recent research indicates that women and girls with FGS have an increased risk of HIV infection<sup>7</sup>.

Children also suffer from the burden of NTDs, particularly STH which have severe impacts on nutritional status of children, specifically those under the age of five. STH lead to stunted growth and underweight; both of which are correlated to impaired cognitive function<sup>8</sup>. This puts affected children at an educational disadvantage in school and later at a socio-economic disadvantage.

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<sup>3</sup> WHO. (2009). *Women and health, todays evidence tomorrows agenda*. ISBN 978 92 4 156385 7. Retrieved from [http://apps.who.int/iris/bitstream/10665/44168/1/9789241563857\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/44168/1/9789241563857_eng.pdf)

<sup>4</sup> Hotez PJ (2009) Empowering Women and Improving Female Reproductive Health through Control of Neglected Tropical Diseases. *PLoS Negl Trop Dis* 3(11): e559. <https://doi.org/10.1371/journal.pntd.0000559>

<sup>5</sup> Larocque R, Casapia M, Gotuzzo E, Gyorkos TW (2005) Relationship between intensity of soil-transmitted helminth infections and anemia during pregnancy. *Am J Trop Med Hyg* 73: 783–789. LarocqueM. CasapiaE. GotuzzoTW Gyorkos2005Relationship between intensity of soil-transmitted helminth infections and anemia during pregnancy. *Am J Trop Med Hyg* 73:783-789

<sup>6</sup> <http://blogs.plos.org/speakingofmedicine/2013/05/06/female-genital-schistosomiasis-fgs-sub-saharan-africas-secret-scourge-of-girls-and-women/>

<sup>7</sup> Hotez PJ, Fenwick A, Kjetland EF (2009) Africa's 32 Cents Solution for HIV/AIDS. *PLoS Negl Trop Dis* 3(5): e430. <https://doi.org/10.1371/journal.pntd.0000430>

<sup>8</sup> MacArthur, C. (n.d.). NTDs and Nutrition. *Envision*. Retrieved January 15, 2018, from [https://www.ntdenvision.org/spotlight/ntds\\_and\\_nutrition](https://www.ntdenvision.org/spotlight/ntds_and_nutrition)

As the evidence suggests, controlling transmission and eliminating NTDs can have a tremendous impact on pregnancy outcomes as well as empower women economically so they can better contribute to the economic and social development of their communities. Further, infection with NTDs can negatively impact the cognitive functioning of children which affects their education, socio-economic status and risks committing them to a cycle of poverty. Thus, investing in efforts to eliminate NTDs is not only highly impactful but is a moral obligation.

### **Policy Implications:**

#### ***NTDs and Sustainable Development Goals (SDGs):***

The 17 SDGs set by the United Nations highlight global commitment to sustainable development. Controlling and eradicating NTDs overlap with 3 SDGs; namely SDG 1 (end poverty in all its forms everywhere, SDG 3 (ensure healthy lives and promote well-being for all at all ages) and SDG 5 (achieve gender equality and empower all women and girls)<sup>9</sup>. In order to achieve the three aforementioned goals, it is crucial to address neglected tropical diseases and the debilitating morbidities associated with them. Although NTDs are not the sole contributor to prevent maternal death, improve child health and address the issues of poverty, they represent an extremely crucial aspect of health and development that needs to be addressed through increased research and development as well as implementation.

#### ***Action on NTDs to advance Canadian commitment to global health for women, adolescents and children:***

Canada is committed to improving women and children's health and ending all preventable maternal deaths. As mentioned above, NTDs are a significant contributor to maternal mortality and morbidity. However, low cost and high impact interventions such as mass drug administration (MDA) to control transmission of and thus eliminate specific NTDs are available. Necessary medicines are currently either donated by pharmaceutical companies or available at a low price, therefore the cost of conducting MDA programs is low. These interventions have been effective in many countries and according to the WHO) with continued global commitment; eliminating the transmission of NTDs is possible, affordable and sustainable.

However, in order to achieve the targets set by the WHO and the London Declaration, research and development in the following areas is still needed:

- drug development
- innovation in diagnostics
- MDA implementation research to reach the most vulnerable populations
- monitoring, evaluation and ongoing surveillance of NTDs

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<sup>9</sup> UN. (n.d.). Sustainable development goals 17 goals to transform our world. Retrieved January 15, 2018 from <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

- data collection related to NTDs- specifically disaggregated data<sup>10</sup>

Addressing the above-mentioned research areas will have a great impact on the health and wellbeing of women, children and individuals living in vulnerable populations and thus enable them to make more meaningful contributions to the economic and social development of their communities.

### **Recommendations:**

The control and elimination of NTDs requires a global commitment and is affordable, sustainable and possible through global commitments, fostering partnerships and investing in continued research in the area of NTDs. We propose the following recommendations for the Canadian government:

- 1) Commit to global initiatives to eliminate NTDs such as Uniting to Combat NTDs.
  - a. Canada should do more to demonstrate its commitment to combat NTDs. The London declaration to fight NTDs is a global commitment to control transmission and eliminate NTDs has been signed by several countries and pharmaceutical industries. Canada's commitment on a global level would ensure that research and development in this area is in line with its feminist international assistance policy and ongoing international initiatives.
- 2) Ensure that NTDs are a priority in development agenda by funding NTD research and development to enable researchers, NGOs and pharmaceutical companies to produce innovative solutions that benefit Canadians and patients worldwide. Specifically, research on drug and diagnostic innovations, MDA implementation and monitoring and evaluation would be most beneficial to NTD elimination worldwide.
- 3) Support research to understand the most cost-effective interventions that enable researchers and governments to improve the implementation of MDA programs.
- 4) Apply research and innovation to understand the significance of gender using the experience and evidence that Canada has already commissioned
- 5) Foster ongoing established relationships with universities in low- and middle-income countries to increase Canada's academic reputation on NTDs abroad.

Despite the success, there are still areas where funding is required to reach the most vulnerable populations so that the vision of a world where people despite their age, race, gender or socio-economic status survive and thrive- and no one is left behind becomes a reality.

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<sup>10</sup> WHO. (2017). *Integrating neglected tropical diseases in global health and development*. ISBN: 978924156544 8. Retrieved from: [http://www.who.int/neglected\\_diseases/resources/9789241565448/en/](http://www.who.int/neglected_diseases/resources/9789241565448/en/)

## **Annex 1: Summary of NTDs**

### **Neglected tropical diseases – Summary**

Dengue: A mosquito-borne infection causing flu-like illness that may develop into severe dengue and cause lethal complications.

Rabies: A preventable viral disease transmitted to humans through the bites of infected animals that is invariably fatal once symptoms develop.

Trachoma: A chlamydial infection transmitted through direct contact with infectious eye or nasal discharge, or through indirect contact with unsafe living conditions and hygiene practices, which left untreated causes irreversible corneal opacities and blindness.

Buruli ulcer: A debilitating mycobacterial skin infection causing severe destruction of the skin, bone and soft tissue.

Yaws: A chronic bacterial infection affecting mainly the skin and bone.

Leprosy: A complex disease caused by infection mainly of the skin, peripheral nerves, mucosa of the upper respiratory tract and eyes.

Chagas disease: A life-threatening illness transmitted to humans through contact with vector insects (triatomine bugs), ingestion of contaminated food, infected blood transfusions, congenital transmission, organ transplantation or laboratory accidents.

Human African trypanosomiasis (sleeping sickness): A parasitic infection spread by the bites of tsetse flies that is almost 100% fatal without prompt diagnosis and treatment to prevent the parasites invading the central nervous system.

Leishmaniasis: Disease transmitted through the bites of infected female sandflies that in its most severe (visceral) form attacks the internal organs and in its most prevalent (cutaneous) form causes face ulcers, disfiguring scars and disability.

Taeniasis and neurocysticercosis: An infection caused by adult tapeworms in human intestines; cysticercosis results when humans ingest tapeworm eggs that develop as larvae in tissues.

Dracunculiasis (guinea-worm disease): A nematode infection transmitted exclusively by drinking-water contaminated with parasite-infected water fleas.

Echinococcosis: Infection caused by the larval stages of tapeworms forming pathogenic cysts in humans and transmitted when ingesting eggs most commonly shed in faeces of dogs and wild animals.

Foodborne trematodiasis: Infection acquired by consuming fish, vegetables and crustaceans contaminated with larval parasites; clonorchiasis, opisthorchiasis and fascioliasis are the main diseases.

Lymphatic filariasis: Infection transmitted by mosquitoes causing abnormal enlargement of limbs and genitals from adult worms inhabiting and reproducing in the lymphatic system.

Onchocerciasis (river blindness): Infection transmitted by the bite of infected blackflies causing severe itching and eye lesions as the adult worm produces larvae and leading to visual impairment and permanent blindness.

Schistosomiasis: Trematode infections transmitted when larval forms released by freshwater snails penetrate human skin during contact with infested water.

Soil-transmitted helminthiases: Nematode infections transmitted through soil contaminated by human faeces causing anaemia, vitamin A deficiency, stunted growth, malnutrition, intestinal obstruction and impaired development.

Mycetoma is a chronic, progressively destructive inflammatory skin disease which usually affects the lower limbs. Infection is thought to be caused by the inoculation, through a thorn prick or skin damage, of fungi or bacteria into the subcutaneous tissue.

Source: [http://www.who.int/neglected\\_diseases/diseases/summary/en/](http://www.who.int/neglected_diseases/diseases/summary/en/)

#### Sources:

1. Hotez PJ (2009) Empowering Women and Improving Female Reproductive Health through Control of Neglected Tropical Diseases. PLoS Negl Trop Dis 3(11): e559. <https://doi.org/10.1371/journal.pntd.0000559>
2. Kumari, A. K., Harichandrakumar, K. T., Krishnamoorthy, K., & Das, L. K. (2010). The stigmata and discrimination experienced, in southern India, by cases of lymphatic filariasis. Annals of Tropical Medicine & Parasitology, 104(5), 421-426. doi:10.1179/136485910x12786389891128
3. Larocque R, Casapia M, Gotuzzo E, Gyorkos TW (2005) Relationship between intensity of soil-transmitted helminth infections and anemia during pregnancy. Am J Trop Med Hyg 73: 783–789. R. LarocqueM. CasapiaE. GotuzzoTW Gyorkos2005Relationship between intensity of soil-transmitted helminth infections and anemia during pregnancy. Am J Trop Med Hyg7378378
4. MacArthur, C. (n.d.). NTDs and Nutrition. Envision. Retrieved January 15, 2018, from [https://www.ntdenvision.org/spotlight/ntds\\_and\\_nutrition](https://www.ntdenvision.org/spotlight/ntds_and_nutrition)
5. UN. (n.d.). Sustainable development goals 17 goals to transform our world. Retrieved January 15, 2018 from <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>
6. WHO. (n.d.). Neglected tropical diseases. Retrieved January 15, 2018, from [http://www.who.int/neglected\\_diseases/diseases/en/](http://www.who.int/neglected_diseases/diseases/en/)

7. WHO. (2009). *Women and health, today's evidence tomorrows' agenda*. ISBN 978 92 4 156385 7. Retrieved from [http://apps.who.int/iris/bitstream/10665/44168/1/9789241563857\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/44168/1/9789241563857_eng.pdf)
8. WHO. (n.d.). Neglected tropical diseases – Summary. Retrieved January 15, 2018, from [http://www.who.int/neglected\\_diseases/diseases/summary/en/](http://www.who.int/neglected_diseases/diseases/summary/en/)
9. WHO. (2017). Integrating neglected tropical diseases in global health and development. ISBN: 978924156544 8. Retrieved from: [http://www.who.int/neglected\\_diseases/resources/9789241565448/en/](http://www.who.int/neglected_diseases/resources/9789241565448/en/)