Policy Brief:
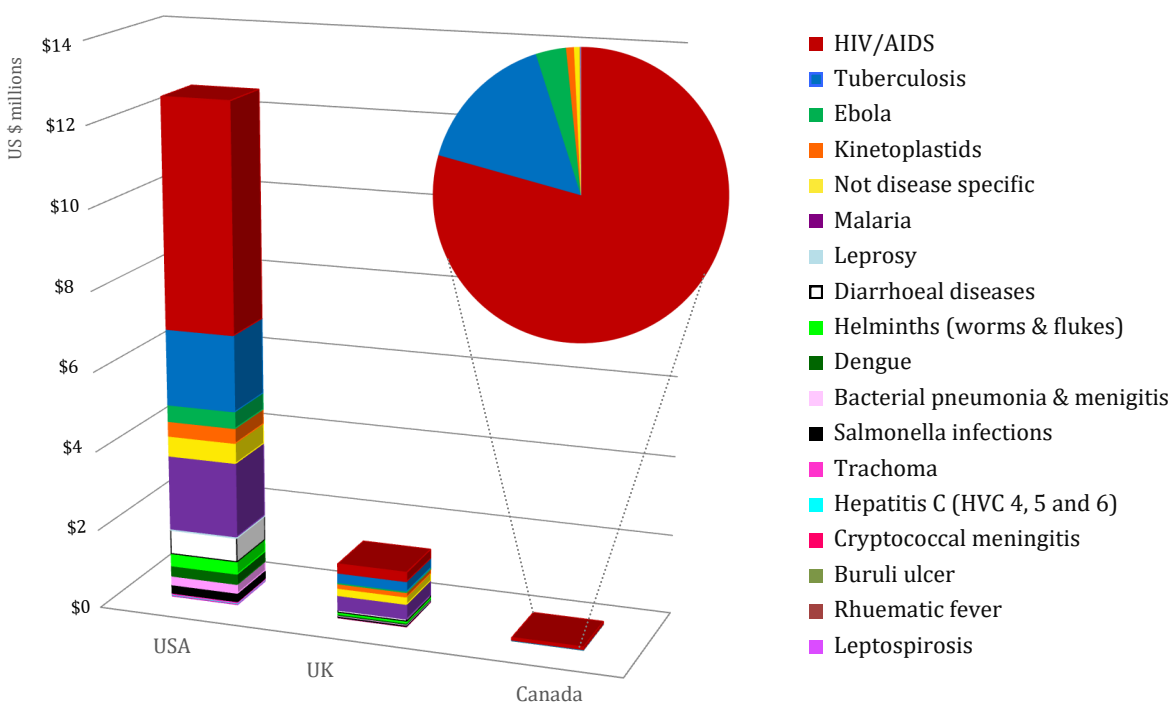# The state of global health R&D in Canada for neglected diseases

Background

Research and development (R&D) is an essential element in fostering healthy populations among people living in poverty. Poverty is not only a major determinant of a population's health, but is also a resulting outcome of populations in poor health. Due to the social determinants of health, including inadequate housing, poor sanitation, food insecurity, low incomes, and lack of access to healthcare, people living in poverty are more susceptible to debilitating and deadly diseases.

The Sustainable Development Goals (SDGs) highlight R&D as a key driver. Goal 3 on ensuring healthy lives includes a target that calls on countries to "support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries […]". Realizing other targets on eliminating infectious diseases such as HIV/AIDS TB and malaria will also require significant investments in R&D. With Canada's commitment to the implementation of the SDGs by 2030 it is timely to examine the state of Canadian R&D into neglected diseases and better determine Canada's role in meeting the SDGs for global health.

Relying on data from the G-FINDER Survey, Canadian R&D into neglected diseases from 2010-2015 has been found to be inconsistent, small in scale, and lacking in diversity.

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Funding Overview

A recent examination of Canadian funding into neglected disease R&D from 2010 to 2015 found the funding landscape to be underwhelming in scale, lacking in diversity, and inconsistent from year to year.[1] The report maps public sector funding in Canada for the six-year period, which totals $79 million USD. The vast majority of this funding was provided by the public sector, specifically the Canadian Institute for Health Research (CIHR), which provided almost three quarters of the total funds.

Academic institutions received almost 75 percent of the total funding, with the University of British Columbia claiming over one quarter of all funding. Though funding provided towards R&D for specific products was varied, vaccine products and basic research claimed 65 percent of total funds. The most dominant component of the R&D landscape in Canada for neglected diseases was HIV, which received almost 80 percent of the total funding and was the most consistently funded disease in the six-year span.

Canadian funding recipients
2010-2015
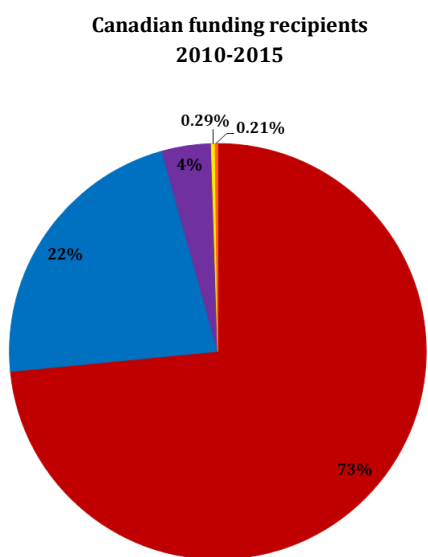
- Academic and other research
- Public sector government
- Unspecified recipients
- Government research institutions
- Pharmaceutical and biotechnology companies and product development partnerships

Annual R&D by product type
Canada 2010-2015
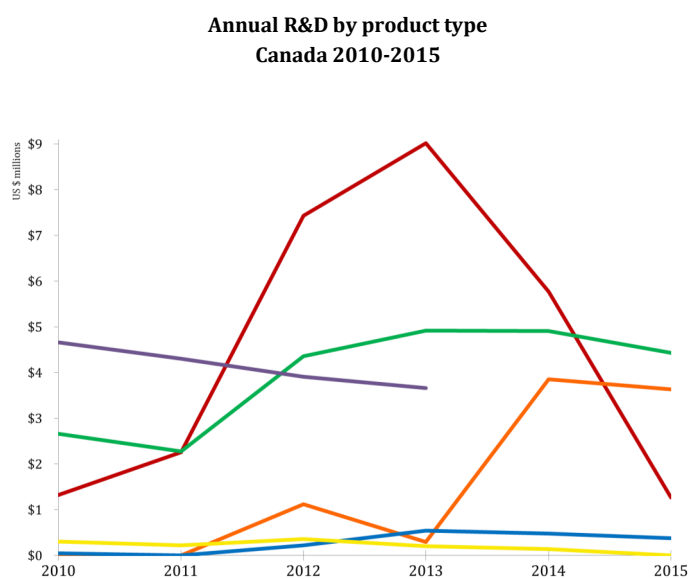
- Vaccines
- Drugs
- Microbicides
- Diagnostics
- Non-specified
- Fundamental research

[1] 2017 Garnham S, Boadu N Y Mapping Canadian R&D Funding for Diseases of Poverty: A six-year landscape 2010-2015 *Global Poverty Solutions* http://globalpovertysolutions.ca/_docs/GPS%20Neglected%20Diseases%20R&D%20Report%20FINAL%20English.pdf

Stakeholder Engagement

Members of Canada's global health community, primarily researchers and academics, participated in a series of round tables to discuss challenges and opportunities in Canadian R&D for neglected diseases in Canada. The round tables were held in the summer and fall of 2017 at the University of British Columbia and McGill University.

Key Challenges

- Rigid systems limit the ability for research concepts and technologies to continue into a development phase and essentially to reach patients and communities. Restrictive and controlling systems limited innovation, from early stage research to product development and distribution. For example, researchers were limited by restricted approval processes on what type of research products would be eligible for funding and doctors were limited by the regulatory processes that made certain drugs available over others.

- Competition for grants and research funding is highly competitive and requires experience and knowledge to navigate application processes. The size of the pot that individual researchers have access to isn't sufficient enough to keep up with the demand for desired projects from the research community.

- Private sector investment in global health R&D and for neglected diseases is low and partnerships were thought to be relatively rare, though desired. Where collaboration had been established, as with the development of the Ebola vaccine, it was viewed as a takeover, where researchers weren't able to see their research through, and instead pharmaceutical companies used publicly funded research to develop a profitable product for the private sector.

- Investments in global health research were generally viewed to be a low priority if it was not immediately clear there would be a benefit to Canadians. Researchers viewed this as a major political stumbling block to increasing funding in Canada.

- Silos within the research and academic community present a problem in identifying common needs and moving them forward.

Key Opportunities

- Focus Canadian research dollars on often-neglected areas of research involving adolescents and pregnant women. Given Canada's new Feminist International Assistance Policy, this could be an area that is both politically appealing and fills a much needed gap in global health research.
- Canada has a long history and pride in the strength of its Canadian medical and research successes. Launching off of Canada's medical research legacy could be a focal point for generating political and public support.
- There are current scientific innovations in Canada that are already receiving funding and positive attention. These are key opportunities from which to launch neglected disease research and development initiatives (e.g. antimicrobial resistance (AMR), CRISPR, Canada's booming biotechnology sector).
- There are global health issues affecting marginalized populations within Canada's borders, particularly for Indigenous people. R&D with these populations is growing and needs to be encouraged. Researchers felt strongly that integrating communities into their projects is necessary, but also that building the R&D capabilities of affected and marginalized communities is essential for success in the long-run. Canada has valuable lessons-learned in this area, in particular with regard to working with Indigenous people.

Recommendations

- Establish an advocacy group for the R&D community to continually identify and move forward on creating positive change.
- Enhance and support Canadian-based R&D with Indigenous groups, including strengthening the Indigenous research community.
- Enhance public understanding of and support for global health R&D in Canada, highlighting medical health and research legacy as a point of pride for Canadians and appealing to global vision of a more peaceful and prosperous world.
- Build support for neglected disease R&D into areas that are currently seeing success and attention in Canada, including AMR, CRISPR technology and biotechnology more generally.

[2] *CRISPR is genome editing technology that allows researchers to alter DNA sequences and modify gene function. Its many potential applications include correcting genetic defects, treating and preventing the spread of diseases and improving crops.* https://www.livescience.com/58790-crispr-explained.html