



Medicines for Malaria Venture

Pre-Budget Submission

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About Medicines for Malaria Venture

MMV is a leading product development partnership (PDP) in the field of antimalarial drug research and development. Its mission is to reduce the burden of malaria in disease-endemic countries by discovering, developing and delivering new, effective and affordable antimalarial drugs.

Since its foundation in 1999, MMV and partners have developed and brought forward six new medicines. MMV and partners manage a portfolio of 65 projects, the largest portfolio of antimalarial R&D and access projects ever assembled. The portfolio includes nine new drugs in clinical development addressing unmet medical needs in malaria, including medicines for children, pregnant women and relapsing malaria, and drugs that could support the elimination/eradication agenda. MMV's success in research and access & product management comes from its extensive partnership network of over 400 pharmaceutical, academic and endemic-country partners in more than 55 countries.

MMV's vision is a world in which innovative medicines will cure and protect the vulnerable and underserved populations at risk of malaria, and ultimately help to eradicate this terrible disease.

Executive Summary

In the past 17 years, due to sustained global efforts, malaria mortality has been reduced by 60% - dropping from over 1 million deaths in 1999 to just over 400,000 today. For the first time in history, it is now possible to conceive of a malaria-free future and efforts to achieve this aim are gaining momentum. Recent global strategies developed by the WHO and Roll Back Malaria (RBM) now envision reducing malaria cases and deaths by at least 90% by 2030. A bold new report spearheaded by Bill Gates and UN Secretary-General's Special Envoy for Health in Agenda 2030 and for Malaria, Ray Chambers builds on these efforts with a plan to completely eradicate malaria by 2040. Malaria remains a leading cause of child deaths in the world - one child still dies from malaria nearly every 2 minutes – but within a generation this may no longer be the case.

To realize the vision of a malaria-free world, however, efforts to stop malaria will need to be stepped up considerably. All three of these complementary global strategies call for at least a doubling of current financing for malaria over the short term, with further scale-up required thereafter.

A critical aspect of expanded global efforts is the need to continue to introduce new technologies to treat, prevent and interrupt the transmission of malaria. New medicines are required because the long-term usefulness of today's treatments is threatened by the spread of drug resistance, as documented in S.E. Asia. Alongside improved diagnostics, vector control and other technologies, medicines that meet unmet medical needs are urgently required. To maintain a robust pipeline capable of meeting these demands, an estimated additional US \$673M is needed annually until 2030 to fund malaria R&D. But while the market for these new tools is huge in terms of those in need, it is small in terms of profit, making conventional financing a challenge.

An additional challenge is that funding for R&D is dominated by a very small group of donors. *The Lancet* recently estimated that more than half of all funding for PDPs responsible for up to 85% of all R&D for infectious diseases affecting low- and middle-income countries comes from one donor - the Bill & Melinda Gates Foundation (BMGF). Similarly, RBM estimates that malaria-specific R&D relies largely on funding from the USA and BMGF. In 2015, MMV received 54% of its annual financing from the BMGF and a further 15% from the UK Department for International Development. New donors for R&D are urgently needed.

Canada is already making a significant contribution to the global challenge of malaria. The recent \$785M commitment to the Global Fund to Fight AIDS, TB and Malaria (Global Fund) represents a 20% increase in Canadian funding levels to this critical organization. Canada's decision to host the Global Fund Replenishment meeting further cements its commitment to fighting the three diseases. Organizations such as Grand Challenges Canada, Canadian NGOs and the Canadian Institutes of Health Research are also funding important malaria programs. But R&D is an area where Canada could leverage its world-class scientific expertise to play a much more pivotal role in the fight against global epidemics. For example, a review of the donors for 10 major, multi-donor PDPs focused on diseases

affecting the poor¹ reveals that Canada and Italy were alone among the top 10 OECD-Development Assistance Committee donors to have no current funding footprint with these institutions.

Canada could redress this with a modest, yet critically-important, investment in R&D in support of its recent Global Fund pledge. For example, re-allocating a minimum of 5% of Canada's Global Fund pledge towards R&D to advance the fight against the three diseases would generate over \$4M in research funding per year, per disease; at current resourcing levels a \$4M annual pledge would likely make Canada one of the top five donors to MMV.

1. What federal measures would help Canadians generally maximize, in the manner of their choosing, their contributions to the country's economic growth?

Canadian scientists are vital stakeholders in global R&D, but despite Canada's world-class medical research capabilities, federal R&D involvement in the fight against malaria is limited. For instance, no Canadian university, private sector company or research institute is currently listed amongst RBM's primary partners on malaria.

MMV is currently working with Canadian researchers, as well as Canadian NGOs on new field-based initiatives designed to build and strengthen local health systems to facilitate R&D and adoption of medicines. With direct Canadian investment in MMV, the Government would be in a strong position to advocate for deepening relationships with the Canadian NGO and research communities.

Beyond funding, supporting MMV is an effective way to leverage other forms of outreach to the scientific community. For example, MMV's Expert Scientific Advisory Committee, convenes annually to review progress in its medicine development projects, to share scientific knowledge and raise awareness among local scientists. In June 2016, MMV co-hosted the Malaria Symposium with McGill University and the Structural Genomics Consortium in Montreal. These efforts give Canadian scientists the opportunity to be at the forefront of science and innovation in the fight against global epidemics.

Recommendation

Federal support to groups like MMV, and similar PDPs related to AIDS and TB, would direct vital Canadian funding to a wide range of innovative scientific organizations with technical expertise to build upon Canada's traditional development partnerships. The Government could leverage such financial contributions to further cement these ties, and help ensure that Canada's global prowess in fundamental scientific research and innovation is utilized to advance new life-saving medicines for diseases that affect the most vulnerable, and help maximise the country's scientific knowledge pool.

¹ MMR, Aeras Global TB Vaccine Foundation, Drugs for Neglected Diseases Initiative, Foundation for Innovative New Diagnostics, International AIDS Vaccine Initiative, Innovative Vector Control Consortium, International Vaccine Initiative, Meningitis Vaccine Project, TB Alliance, and Global Health Innovation Fund.

2. What federal actions would assist Canada's businesses meet their expansion, innovation and prosperity goals, and thereby contribute to economic growth in the country?

The estimated resource needs described above for global malaria elimination and eradication far outstrip the availability of resources. The same is categorically the case for AIDS and TB. The WHO and UNAIDS strategic plans for 2016-2021 – aimed at laying the groundwork to end AIDS by 2030 – call for annual resourcing levels to rise by billions of dollars, and both organizations highlight the need for science and innovation as key elements of this scale-up. Similarly, Stop TB's *Global Plan to End TB* calls for the need to invest \$9B over the next 5 years for R&D as a core aspect its financial scale-up plans.

In an era when traditional ODA levels are stagnating, it will not be possible to meet these funding requirements through traditional development channels. Much of the burden for raising new funds will fall to developing countries. But they alone cannot cover the required costs.

Innovative funding models, like MMV's, that raise funding and in-kind contributions from public, private and philanthropic sectors, will be increasingly necessary to meet these goals. MMV has been able to leverage approximately \$2.50 for every \$1 of donor funding in matched funding and in-kind support from academic and industry partners. This model aligns with Canada's desire for further collaboration with private sector and non-traditional aid partners.

By sharing its cutting-edge scientific expertise and facilities with PDPs focused on developing new interventions for poverty-related, infectious diseases, the Canadian research community has much to gain. MMV's open innovation model of drug discovery relies on sharing the risk, cost and effort amongst a select research community, helping to catalyse research and allowing key partners to potentially generate intellectual property and file a patent. This early knowledge sharing not only forms a strong basis for the identification of exciting compounds but also for future partnerships and growth. Canada's support of PDPs such as MMV would significantly contribute to and strengthen the storehouse of Canadian scientific knowledge and ultimately contribute to economic growth.

Recommendation

The federal government should harness the use of alternative funding mechanisms, such as MMV, to improve the efficiency of its development assistance resources, foster research and innovation, and catalyze additional resources from the global business sector, all of which could support national economic growth.

3. What federal measures would ensure that urban, rural and remote communities throughout Canada enable residents to make their desired contribution to the country's economic growth and businesses to expand, prosper and serve customers in order to contribute to growth?

A commitment of resources aimed at supporting R&D for new health technologies, linked directly to Canada's newly-increased contribution to the Global Fund, is likely to resonate strongly with Canada's NGO sector and other stakeholders. Umbrella organizations such as the Interagency Coalition on AIDS

and Development, representing some 100 services organizations, NGOs, and educational institutions from across Canada, strongly supported Canada's increased Global Fund pledge and would likely similarly support funding for related R&D.

Similarly, such a commitment would be viewed as another step in Canada's internationally recognized role in supporting evidence-based women and child health policy, especially given the disproportionate impact of malaria on this vulnerable population. MMV has already been warmly welcomed into the Canadian Partnership for Women and Children's Health and this commitment would further leverage Canada's expertise and global reputation in humanitarian work, research and innovation.

Such networks represent interested stakeholders situated across Canada that would likely amplify how this is a strategic, evidence-based complement to Canada's Global Fund pledge, and to its overall role in global health, within their Canadian constituencies.

Recommendation

A decision to provide funding to support R&D to advance the global fight against AIDS, TB and malaria should be positioned by the Government as part of an explicit virtuous cycle of funding and growth in the repository of Canadian research skills. The increased pledge to the Global Fund, and hosting September's Replenishment Conference, embodies Canada's determination to continue funding programs that are reaching those in need with proven healthcare interventions. Re-allocating a minimum of 5% of this funding towards R&D would signal a new, reinforced move by Canada to play a role in securing the core technologies upon which health service delivery programmes of the future will be built. Such technologies can be used for research into any disease and thus be of benefit to Canada and the world.

Conclusion

Hosting the Global Fund's Replenishment Conference will strongly signal Canada's commitment to being at the centre of global plans to fight and ultimately end the epidemics of AIDS, TB and malaria. This commitment would be augmented by a commensurate re-allocation of a minimum of 5% of Canada's Global Fund pledge to R&D initiatives that support these global efforts, directly enhancing Canadian prospects for research, innovation and economic growth both at home and abroad.