A Letter from Dr. Peter A. Singer

BOLD IDEAS WITH BIG IMPACT

Two years ago, on May 3, 2010, the Honourable James Flaherty, Minister of Finance, on behalf of the Government of Canada, helped launch Grand Challenges Canada.

Our mission is simple. We are dedicated to the pursuit of a transformational goal: supporting bold ideas with big impact to improve and save lives in the developing world.

We believe that, by bringing together scientific, social and business innovation – what we call Integrated Innovation – we can have a transformational impact by addressing pressing global health challenges.

In the two years I have been privileged to serve as Grand Challenges Canada’s Chief Executive Officer, I have been challenged by the problems we are addressing and inspired by the innovators who are working to solve them. To mark our second anniversary, I want to share some of the stories of the innovators we support and the challenges they are addressing because, at the end of the day, I feel that these honest, human experiences are the best demonstration of the difference we are making in people’s lives and the potential for even greater impact going forward.
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A Visit to Mulago Hospital: Saving Lives at Birth

The enormous challenge of women’s and children’s health and the critical need for proper care at the time of birth are priorities for Grand Challenges Canada.

The true scale of the health challenges that women and children face in many low- and middle-income countries was brought home to me on a trip that I took to the maternity ward at Mulago Hospital in Kampala, Uganda, in August 2011. On that visit, I was shocked to see a young woman literally writhing on the floor in pain, suffering from obstructed labour as she waited for a Caesarean delivery. The local hospital handles about 32,000 deliveries each year and frequently manages up to 115 births in a single 24-hour period. While there, I saw at least three wards that were filled past capacity, with pregnant women in need of medical care for complications such as pre-eclampsia. When I saw the healthcare team coping with this huge volume of patients, I thought back to my days as an intern and how their workload, day after day, was busier than my busiest night.

Globally, about 150,000 women and 1.6 million newborn children die in the 72 hours around the time of birth. More than 90% of these deaths are in the developing world and, with improvements in the availability and delivery of care, more than 90% of those are preventable.

To confront this challenge, Grand Challenges Canada has partnered to create the Saving Lives at Birth initiative with USAID, the Bill & Melinda Gates Foundation, the Government of Norway and the Department for International Development in the United Kingdom. Over five years, this partnership will invest $50 million CAD in bold ideas to save the lives of women and children.

The Saving Lives at Birth initiative has already funded a range of innovators. I want to introduce you to three projects that demonstrate the spectrum of our work in this area, from science to business to social interventions.
**1.** Drs. Mark Ansermino and Peter von Dadelszen at the University of British Columbia are developing a low-cost diagnostic tool for community health workers in remote areas. The oximeter is a software-equipped cell phone that beams light waves through a patient’s finger to measure blood oxygen levels. This easy-to-use technology will enable diagnosis and treatment of pre-eclampsia, saving so many mothers’ lives.

**2.** Sam Agutu’s group Changamka Microhealth in Nairobi, Kenya, is proposing to develop e-vouchers delivered through a cell phone app to encourage women to seek care during their pregnancy and at birth. Already 1,500 Kenyan women have adopted the app and 900 will have access to the e-vouchers to help pay for prenatal care and transportation to a clinic or hospital.

**3.** Aminu Gamawa, who is working with the Development Research and Projects Centre (dRPC) in Nigeria, is relying on persuasion and experience to change the attitudes of some Islamic opinion leaders in the country’s Muslim northern states. The project will leverage the persuasive powers of progressive Islamic leaders to change opinions of more traditional leaders about maternity and newborn care. These latter two projects, in particular, epitomize the passionate commitment borne of personal experience that is so common in many of our innovators. Touched by tragedy, these people are seeking to correct problems that they have not only witnessed but have endured.

Sam Agutu’s sister died in childbirth on the way to the hospital and Aminu Gamawa also lost his mother in this way. Both men are quick to point out that the deaths of their loved ones could have been avoided if better care had been available. They’ve channelled their devastating loss into powerful motivation to improve the odds of survival for women and their babies.
Annie’s Story: Saving Brains

It is not enough, however, simply to ensure that mothers and children survive; it is equally important that they flourish. Consider the story of Annie, a young girl whom Grand Challenges Canada’s Program Officer for Women’s and Children’s Health, Dr. Karlee Silver, met in 2007 in Malawi:

“Annie would launch her tiny body into anyone’s open arms. While she was beautiful, she was also malnourished, and lacked attention and nurturing. Annie grew up in a village that primarily ate cassava, a staple crop that is not rich in the nutrients that children like Annie need. Like many of the women, Annie’s mom would be out in the field tending to the cassava crop, so she didn’t have the time to spend with Annie to nurture her.”

Due to malnutrition, infection, birth complications, and lack of stimulation and nurturing, as many as 200 million children fail to reach their full developmental potential. This process of stunting is a growing tragedy that carries devastating economic and human consequences, measured in terms of learning challenges, lower wages, social marginalization and more. This loss of human potential is a hidden crisis that needs to be turned around. Grand Challenges Canada is addressing this challenge through our Saving Brains initiative, to identify and target early-life interventions that can more effectively prevent stunting. We will also identify the economic costs of this problem, in order to prioritize the uptake of high-impact, low-cost interventions. We will be announcing our initial grants in the summer of 2012.

In this particularly important challenge, we are honoured to have the support of Mrs. Laureen Harper, Honorary Chair of our Saving Brains initiative, who wrote, “I am supporting this initiative because of the potential to bring transformative change to the lives and future of the developing world’s children.”
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Buyiswa’s story: Global Mental Health

As difficult as it can be to overcome global health challenges that are well understood and recognized, those that for cultural or other reasons are overlooked can be even more daunting to solve. The impact of mental health challenges in countries such as Canada, where treatments are comparatively accessible and affordable, can be devastating both for individuals and for their families. In the developing world, however, these conditions are often overlooked and untreated, compounding their already profound impact.

An example of this can be seen in the story of Buyiswa, a mother in Khayelitsha, South Africa, who suffers from depression and bipolar disorder and who is the subject of a short documentary by filmmaker Delaney Ruston. Even in a comparatively rich country like South Africa, it can be difficult for women like Buyiswa to get access to professional mental healthcare. Instead, they often rely on herbal medications from traditional healers or remain untreated. In her own words:

“I have not told my community about my illness; maybe they will laugh and think I am mad. I started having depression in 2008, I saw evil things calling me to go outside...I wanted to take anything and just that it would make me die.”

Because Buyiswa was able to access the medical care and medication she needed, there has been a measurable improvement in her quality of life and her children’s life. Unfortunately, this outcome is all too rare.

Globally, mental health is among the most neglected of the neglected diseases. Mental health truly is a global epidemic, which is responsible for an estimated 13% of the entire global burden of disease, particularly in the developing world. For all these reasons, we have made one of the largest investments ever in global mental health. Approximately $20 million has been earmarked to help spur innovations in global mental healthcare with a particular focus on improved treatments, expanded access and destigmatizing the disease. The first wave of grant recipients will be announced in the fall of 2012.
Making a Difference: Stars in Global Health

Committing to health innovation over the long term requires an equally robust commitment to the current and coming generation of researchers and innovators.

Our Stars in Global Health initiative aims to enable innovators in Canada and in the developing world to generate bold new ideas with the potential for transformational impact. The initiative begins with $100,000 grants for “proof of concept”, so that these innovators can turn bold ideas into concrete solutions to global health challenges. If these solutions appear promising in terms of their potential scale and impact, innovators can access up to an additional $1 million to help take their solutions to scale. We are also working on other complementary ways to ensure scale through public and private support. To date, we have made 34 awards over two competitions and we recently expanded the program to innovators in low- and lower-middle-income countries.

Over the next five years, we plan to announce over 500 awards, representing an amazing pipeline of innovations in global health.

These ideas span a broad spectrum, encompassing and combining science and technology, social and business innovation, a concept we call Integrated Innovation. The following are just a few examples of these inspiring global health innovators:

1. “HIV saliva self-test shown to be as effective as blood test” – One of the critical challenges in diagnosing and treating HIV/AIDS is that conventional diagnostic tests require a blood test administered by a trained health practitioner. The stigma that can be attached to such testing is a serious barrier to diagnosis. Dr. Nitika Pant Pai, at McGill University, is focused on overcoming this challenge through the development of a synergistic, innovative self-testing strategy for HIV that is non-invasive, pain-free and produces results in 20 minutes. Initial testing suggests that the saliva HIV test – or OraQuick(R) Rapid HIV1/2 Antibody test – has the same 97-99% rate of accuracy as a standard blood test for high-risk populations.

2. “A novel artificial knee joint for lower-limb amputations: a functional and affordable technology for low- and middle-income countries” – Another critical global health challenge is disability and the prohibitive cost of prosthetic limbs. Dr. Jan Andrysek, at the Holland Bloorview Kids Rehabilitation Hospital, is addressing this challenge by developing an affordable artificial limb to reduce disability in low- and middle-income countries.

3. “TB_View 1000: Low cost digital X-ray for tuberculosis screening” – A significant challenge in the diagnosis and treatment of tuberculosis is the size and cost of X-ray machines. To address this challenge, Dr. Karim S. Karim, at the University of Waterloo, is working to produce a $1,000 digital X-ray machine to accurately and rapidly detect tuberculosis in underserved populations.
When you look at the extent of health needs and health challenges throughout the developing world, it is impossible not to feel overwhelmed. Grand Challenges Canada was born of a desire to confront and overcome these challenges.

It is rooted in a belief that ingenuity, coupled with practical application, can make a real difference in the lives of many. We are ramping up quickly; Grand Challenges Canada has funded 55 innovations so far.

The people, priorities and projects I’ve introduced you to in this letter are a small sliver of our potential. With the determined effort of our committed and talented team, the Board of Directors chaired by Joseph L. Rotman, the Scientific Advisory Board and partners Canada’s International Development Research Centre and the Canadian Institutes of Health Research, we can achieve even more. I am inspired by the innovators we support, and the progress they will make on saving and improving lives through their Bold Ideas with Big Impact.

In the coming months, I’ll update you further on our work, the ideas we’re pursuing and the lives that we’re improving.

Dr. Peter A. Singer
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