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News Release

January 30, 2015

Canada funds maternal device for the prevention of stillbirth and low birth-weight in Ghana

Through modifying sleep position, the PrenaBelt may significantly reduce the number of low birth-weights and stillbirths in Sub-Saharan Africa

Edmonton (AB, Canada) and Accra (Ghana) – Innovators at Innovative Canadians for Change Foundation (ICChange), through their support of Global Innovations for Reproductive Health and Life (GIRHL), have received a \$100,000 grant from Grand Challenges Canada (which is funded by the Government of Canada) for a project that aims to improve the health of mothers and newborns.

Every year, approximately 2.6 million stillbirths (SB) occur and 20 million low birth-weight (LBW) babies are born worldwide. The vast majority of these cases occur in low- and middle-income countries. Sub-Saharan Africa has the highest rate of SB globally and has made the least progress in reducing this number. Similarly, this region has some of the highest rates of LBW in the world. Recently, several studies have identified sleeping on the back during pregnancy as a potential risk factor for having SB or LBW baby. This is a significant correlation, since pregnant women spend up to 25% of their sleeping time on their back.

Innovators from ICChange, through their support of GIRHL, will test a simple, low-cost, and easy-to-implement device that can mitigate this risk factor, which may be one of the keys to enabling an unprecedented reduction in the global burden of SB and LBW. The device, called 'PrenaBelt', is designed specifically for use by pregnant women while sleeping. The PrenaBelt causes subtle pressure points when she rolls onto her back. These pressure points activate the body's natural response to spontaneously relieve this pressure by changing position to her side.

With funding from Grand Challenges Canada, the safety and efficacy of the PrenaBelt in modifying sleeping position in third trimester pregnant women will be evaluated in Halifax (Canada). Subsequently, the PrenaBelt will be trialed in Accra (Ghana) to determine its impact on pregnancy outcomes (birth weight, stillbirth). The research team will also assess the feasibility of incorporating the PrenaBelt into standard antenatal care in a resource-limited setting.

It is expected that the PrenaBelt proves efficient to safely and significantly reduce the amount of time a pregnant woman spends sleeping on her back. In Accra, the innovators hope to show that the PrenaBelt will have an appreciable impact on pregnancy outcomes.

In addition to working with local midwives and obstetricians, the research team will also work with traditional birth assistants in Ghana to refine and increase access to the PrenaBelt while ensuring cultural acceptability and maximizing user adherence. Ongoing impact and sustainability will be ensured by establishing or partnering with a company that will utilize an innovative, social-enterprise model of business to increase access to the technology in resource-limited settings.

“This really is an exciting time for our team and the field of sleep-in-pregnancy research,” says Allan Kember, the Principal Investigator. “Studies have shown that a simple thing like changing the sleeping position can have a dramatic effect on public health. Our team is poised to take a step-by-step approach, combining research in Canada with trials in Ghana. While the exact relation between back sleep and low birth-weight and stillbirth is still under scrutiny, it’s this unanswered question and the big impact that the answer could have on developing regions that makes our project so interesting.”

Mr. Kember is a medical student at Dalhousie University. His team and mentorship circle consists of investigators and subject-matter experts from ICChange, GIRHL, IWK Health Centre, Capital Health Sleep Disorders Clinic, Korle Bu Teaching Hospital, University of Ghana Medical School, Cleveland Clinic, University of Michigan, and Harvard Business School.

The innovators were awarded the \$100,000 grant after a worldwide call for proposals issued by Grand Challenges Canada, an organization funded by the Government of Canada that is dedicated to supporting Bold Ideas with Big Impact in global health. The grant announced today is part of Grand Challenges Canada’s Stars in Global Health program, which supports unique, transformative ideas for addressing health challenges in developing regions.

Canada is playing a leadership role in mobilizing global action to eliminate the preventable deaths of mothers, newborns and children in developing countries, with innovative models and approaches. It is Canada's flagship development priority.

For more information, visit icchange.ca, girhl.org, or grandchallenges.ca.

About Innovative Canadians for Change Foundation (ICChange)

ICChange is a not-for-profit organization based in Alberta, Canada which aims at increasing the quality of life and security of vulnerable populations around the world. Through innovative approaches and systems thinking, we focus on delivering meaningful, impactful, and locally appropriate solutions to populations seeking to empower themselves. ICChange currently operates in several regions around the world including East Africa, Southeast Asia, North America, and South America.

About Global Innovations for Reproductive Health and Life (GIRHL)

GIRHL is a not-for-profit organization based in Cleveland, USA with a mission to alleviate the global disparities in women's healthcare through research and innovation. We utilize an engineering perspective to foster a culture of innovation whereby good ideas can be developed, tested, and implemented. We currently have several ongoing projects in both Ethiopia and Nepal.

About Grand Challenges Canada

Grand Challenges Canada is dedicated to supporting Bold Ideas with Big Impact in global health. We are funded by the Government of Canada; we support innovators in low- and middle-income countries and Canada. The bold ideas we support integrate science and technology, social and business innovation to find sustainable solutions to health challenges – we call this Integrated Innovation®. Grand Challenges Canada focuses on innovator-defined challenges through its Stars in Global Health program, and on targeted challenges in its Saving Lives at Birth, Saving Brains and Global Mental Health programs. Grand Challenges Canada works closely with Canada's International Development Research Centre (IDRC), the Canadian Institutes of Health Research (CIHR) and Foreign Affairs, Trade and Development Canada (DFATD) to catalyze scale, sustainability and impact. We have a determined focus on results, and on saving and improving lives.

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