Grand Challenges awards 102 global health grants

More than 100 researchers from around the world have received \$100 000 seed grants to pursue global health projects, through the fourth annual Stars in Global Health awards from Grand Challenges Canada. The federally funded competition encourages researchers to propose bold, creative ideas that could change health outcomes in lower- and middle-income nations by removing critical barriers.

The program finances projects that integrate scientific innovation, social benefit and sustainable business models, says Dr. Peter Singer, chief executive officer of Grand Challenges Canada. The organization is independent, but works in a consortium with Canada's International Development Research Centre and the Canadian Institutes of Health Research. The Sandra Rotman Centre, which is dedicated to innovative global solutions, houses Grand Challenges in Toronto, Ontario.

"The idea is turning innovations into enterprises that achieve social benefits but also create jobs," says Singer.

Grand Challenges awarded 102 grants this year, with 59 recipients coming from 13 low- and middle-income countries, and the other 43 from Canada. Since its inception in 2010, Grand Challenges has funded 283 projects.

The \$100 000 seed grants help researchers test their concepts, which are similar to pilot projects rather than peer-reviewed research. In the program's second phase, successful applicants can receive up to \$1 million in funding. Grand Challenges has not yet awarded any second-phase funding, but is receiving applications.

This year's winners, each of whom has posted a two-minute video on the Grand Challenges website, included a wide spectrum of projects from making agriculture more efficient to creating portable diagnostic technology, to texting health information to people in remote areas. A few examples:

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Nyaya Health received grant money to create a mobile phone-based data system for rural health workers in Nepal. The nonprofit organization hopes these data can help communities advocate for better health care, and help government improve service to Nepal's rural poor.

Health texts. Nazeem Muhajarine's MHealth for Migrants project at the University of Saskatchewan involves texting reproductive health information to migrant workers in Vietnam. These workers — often single women — move from rural areas to Hanoi or Ho Chi Minh City to get jobs in factories. The women live in poor conditions, without health insurance, and are at risk of substance abuse, sexually transmitted infections, HIV and unwanted pregnancies, says Muhajarine, a professor and head of the university's Department of Community Health and Epidemiology.

Muhajarine and his former graduate student Lan Hoang Vu have created a pilot project that will survey 400 migrant workers in Hanoi about the types of health information they need, and then send health-related text messages to the workers' phones. Workers will be able to call a health hotline and will receive a paper booklet listing health care providers' addresses, information and the types of care they provide. "There are migrant workers with very important unmet health needs all over the world," says Muhajarine. "We're trying to fill this gap, to meet this need."

Role-playing game. In Kenya, Dr. Njambi Njuguna of Kenyatta National Hospital has developed a program to send HIV-related mobile phone text messages to young women at risk of HIV infection. Njuguna's project will be rolled out alongside a mobile phone application that Pam Muthuri of the nongovernmental organization El-Friezo created. The application consists of a role-playing game called "No Sugar for Me." The game will teach girls about the dangers of becoming involved with "sugar daddies" — mature men who support young women financially in exchange for sex. Sugar daddies contribute to the high rate of HIV among adolescent girls in Kenya, where women aged 18–24 are four times more likely to have HIV than young men in the same age group.

Analyzing breath. At the University of Alberta, physicist John Davis is developing a device to "fingerprint" someone's breath to highlight markers of multiple diseases. Davis' team is creating different strings in the device that are sensitized to identify and measure particular disease-marking metabolites in the breath, such as acetone, as a diabetes marker.

“We have been using these devices for physics, but we realized partway through our work with the National Institute for Nanotechnology that we could do this with other things,” Davis says. Currently, the team has a model device that can detect tiny particles, but is not yet specific enough to identify and quantify them. The team hopes to miniaturize the device so it will be portable.

Rural surveillance. Dr. Duncan Maru, a clinical fellow at Brigham and

Women’s Hospital in Boston, Massachusetts, and rural practitioners from Nyaya Health in Nepal are creating a mobile phone–based health information system for rural, remote and community health workers. The system will allow workers to collect surveillance about available public health services and correlate it to maternal and child health data and outcomes in communities where they work or visit.

Reducing infection. Kenya’s Action Africa Help International plans

to stave off infectious diarrhea with a simple copper coil. The coil, placed in a container of water for 16 hours, kills diarrheal pathogens, say researchers who have designed different coils for different volumes of water. The non-governmental organization plans to test the device in a rural Kenyan community, a Nairobi slum and in the slums of Chennai, India. — Catherine Cross, *CMAJ*

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