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Mathematician going to Africa to fight disease

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A local mathematician is using his number-crunching savvy to help control the spread of tuberculosis, AIDS and malaria in Africa.

University of Manitoba mathematics professor **Abba Gumel** is travelling to Uganda with other Canadian and African mathematicians, scientists and health officials for a first-of-its-kind meeting next week to discuss the spread of diseases such as AIDS or tuberculosis.

Researchers hope to create mathematical models to track the transmission of infectious diseases.

Mathematical modelling will be used to simulate the outbreak of a disease in a specific area, so doctors can test the effectiveness of programs to contain it.

Gumel said few people are aware that math is a tool that has been used to control the spread of diseases in many countries -- including Canada. Gumel said he and his colleagues did similar mathematical modelling during the SARS outbreak, to help determine how many people would get sick and have to be quarantined.

Similar models have been done to minimize the damage and prepare for a potential pandemic flu outbreak.

Gumel said mathematicians use epidemiological and demographic data to determine how much damage a disease outbreak will cause. The findings could influence health policy and disease-control strategies in African countries.

"The idea is to use mathematical approaches, theories and techniques to understand the transmission of diseases," Gumel said.

"You can quantify how many people are going to get infected, how many people are going to die, how many people are going to need hospitalization, if you are modelling correctly."

The three-day meeting is being organized by a Burnaby, B.C., math research network. It has attracted mathematicians from across Canada, as well as researchers from universities in Uganda, Kenya, Botswana, Zimbabwe and South Africa.

Nearly 40 million people worldwide are infected with HIV-AIDS and more than one million die each year from tuberculosis.

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