

LEADER-POST**Canadians use math to fight disease**

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WINNIPEG -- It's not unusual for Canadians to battle infectious diseases in Africa -- but Prof. Abba Gumel's "medicine" is mathematics.

Gumel of the University of Manitoba is part of a Canadian team of mathematicians leaving for Botswana on Friday to teach about two dozen Canadian and African graduate students how to control the spread of infectious diseases using sophisticated mathematical models.

"The idea is to use mathematical approaches to understand infectious diseases," Gumel said. "This is my area of specialization, mathematical biology."

Gumel said the project goes far beyond compiling and analyzing statistics. It involves math, computer science, statistics and public health policies.

"The key point is to come up with strategies," he said.

The model is mathematical, using equations that can take the data on a disease, then help researchers predict the number of cases likely to develop, who will get sick and where, how many hospital beds will be needed, and how many deaths will occur, he said.

Using the model, public health officials can see where they'll need to establish quarantines, or can have resources ready for effective intervention, Gumel said.

"It's really focusing on the training side of things," Gumel said. "(Africa) is a hot spot, if you really want to do serious modelling of infectious diseases."

Gumel said Canadian mathematicians have been working with public health officials in Canada to develop mathematical models, particularly since the SARS outbreak in the Toronto area several years ago.

Gumel and Troy Day, a professor of mathematics, statistics and biology at Queen's University, are members of the **Mathematics of Information Technology and Complex Systems (MATICS)**.

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