

Answers to U.S. health threats found in Africa *Students in Science & Technology's Minority-Serving Institutions Program get research boost from stay at IDS Center*

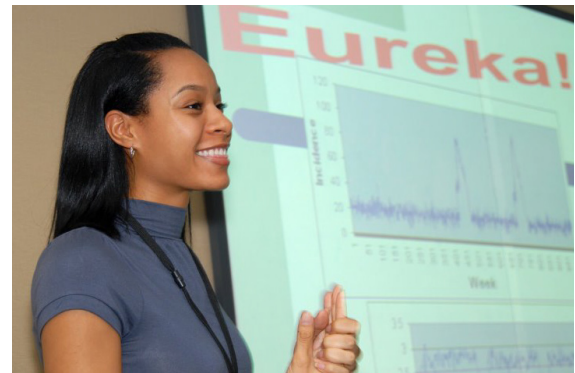
An understanding of HIV and tuberculosis, crises of an epidemic scope in parts of Africa, is giving DHS students insights to prevent naturally-occurring and bioterror threats in the U.S.

As part of DHS' Summer Research Team Program for Minority Serving Institutions, Howard University students Ashley Crump and Devroy McFarlane, and Morgan State's Anthony Ogbuka and Nakeya Williams, joined students and researchers in South Africa in June to address disease spread in Africa.

The students are developing mathematic models to assess disease spread and analyze data to head off the next disease outbreak. Of concern are diseases like SARS and avian flu, and bioterrorism threats.

Challenges in the students' resarch include privacy concerns and inconsistencies across groups in reporting health data. These variations and gaps in data create "noise" within data collection. Fortunately, mathematics can be applied to cut through the noise and indicate the existence of an outbreak.

Abdul-Aziz Yakubu of Howard and Asamoah Nkwanta of Morgan State led the students. Their host was Nina Fefferman of the Center for Discrete Mathematics and Theoretical Computational Science at Rutgers University. The Center is aligned with the Center for Dynamic Data Analysis, part of the DHS Institute for Discrete Sciences Center of Excellence.



Ashley Crump of Howard was among several DHS summer research program students who visited Africa to learn about disease prevention.

In Africa, the team joined 15 other American students and an equal number of African students. Talks addressed government policies and cultural practices that enable or stem disease spread. This understanding is increasingly valuable as the U.S. faces previously unknown diseases and the ease of disease transfer across borders via humans and animals.

"African students are increasingly using math skills to address public health issues," said Ogbuka, a Morgan State graduate student in public health. "One student who has modeling experience is helping us with our project."

"The African professors showed us how close their life is to their work," said Crump, an undergraduate math major at Howard. "As one professor described an HIV model, he told us how it applied to his family."

While the student teams achieved promising results while at Rutgers, their work will continue as they seek to establish techniques to detect disease spread as rapidly as possible.

"These are fantastic students," said Fefferman. "They understand the research process and have helped transform our work into a cohesive endeavor."

Compiled from an article by Carl Blesch, Rutgers University

This article is an excerpt from the U.S. Department of Security Student & Alumni Newsletter.

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DHS Summer Research Team Program member visiting the IDS Center. Back, Anthony Ogbuka, Ashley Crump, Nakeya Williams and Devroy McFarlane. Front, Asamoah Nkwanta, Nina Fefferman (Program host from Rutgers University) and Abdul-Aziz Yakubu.