Exposing the dangers of Co-trimoxazole

Dr. William Buwembo

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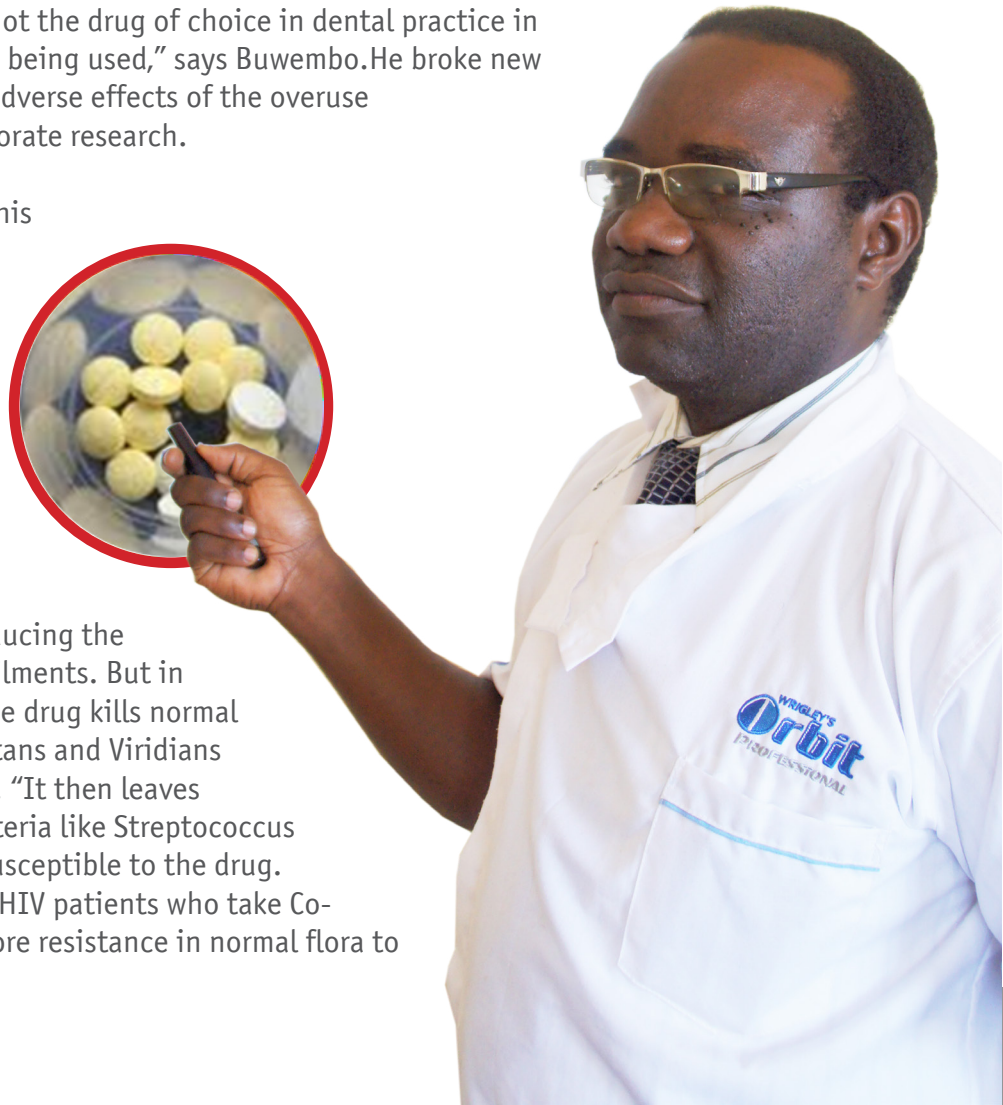
Doctorate Studies: MakerereUniversity and Uppsala University in Sweden 2009 -2012;
Title of Doctorate research:'Viridans Streptococci Group: Antibiotic susceptibility profiles, cotrimoxazoleprohylaxis and the molecular basis of cotrimoxazole resistance in Uganda'

"One of the drivers for this work is that there is overuse of *Co-trimoxazole,* a drug we studied to see what its overuse has done to the community. Although it is not the drug of choice in dental practice in this country, it is frequently being used," says Buwembo.He broke new ground in the discovery of adverse effects of the overuse of *Co-trimoxazolein* his doctorate research.



He explains that although this drug is recommended for daily use amongst HIV/ AIDS patients, to lessen incidents of attacks of several ailments including diarrhea, coughs and malaria, it ends up killing useful flora in the body as well.

"It has been effective in reducing the occurrence of these other ailments. But in the process of doing this, the drug kills normal flora like Streptococcus mutans and Viridians streptococcus," he explains. "It then leaves behind disease causing bacteria like Streptococcus pneumonie which are not susceptible to the drug. In the study we conducted, HIV patients who take Co-trimoxazoledaily showed more resistance in normal flora to

the drug, compared to those who were not taking it" he adds.

His research discovered 45 new sequences in the alignment of genes showing resistance markers (https://www.pubmed.com/nuccore/?term=Buwembo). Dr. Buwembo nonetheless concedes that the time is not ripe to show that Co-trimoxazoleis causing adverse effects especially since the other benefits of using the drug still hold. "It is difficult to get a policy to stop the usage of this drug because it is cheap and we do not have an alternative good enough to stop occurrence of other ailments in HIV patients yet," he says.

Doctorate Research Area

Dr. Buwembo focused on determining the extent and the methods by which bacteria normally present in our mouths and throats are able to prevent drugs from killing them. These bacteria are usually harmless but occasionally cause life-threatening diseases and drugs are needed to kill them. He found that these bacteria have developed high abilities to prevent commonly used drugs from killing them and that they share these abilities with disease causing bacteria. The common practice of Co-trimoxazoleprophylaxis in HIV patients led to a significant increase in bacteria causing tooth decay with these abilities. This development may make commonly used drugs ineffective, and calls for alternative drugs and continued surveillance of the bacterial

abilities to withstand our drugs.

Supervision

He is currently supervising 3 M.Sc students in the area of Human Anatomy

Membership to Professional Organisations

- Member of the International Association of Dental Research (I.A.D.R) East African Division;
- Member of the Uganda Medical Association (U.M.A.);
- Member of the Uganda Dental Association (U.D.A.);
- Member of the Society for General Microbiology;
- Member of the American Society of Tropical Medicine and Hygiene.