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## News Release

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### **USU Faculty Member First to Receive Bill and Melinda Gates Foundation's Research Grant**

**BETHESDA, Md.** — Nicole L. Achee, Ph.D., assistant research professor, Uniformed Services University of the Health Sciences' (USU) Department of Preventive Medicine and Biometrics, will receive a project support grant for \$3.5 million from the Global Health Program of the Bill and Melinda Gates Foundation through the Henry M. Jackson Foundation for the Advancement of Military Medicine.

Dr. Achee is the first faculty member at USU to receive a grant from the Bill and Melinda Gates Foundation. The purpose of her research program is to develop a novel insecticide treated material push-pull system to reduce *Aedes aegypti*, a mosquito that can spread dengue fever inside homes where they are most likely to feed on humans and transmit the dengue virus. This will be accomplished using insecticide treated materials (ITM) that have been treated with chemicals currently registered for vector control to repel and irritate the mosquitoes from inside homes, forcing them outside into a lethal trap.

Dengue fever and dengue hemorrhagic fever (DHF) are caused by one of four closely related, but antigenically distinct, virus serotypes (DEN-1, DEN-2, DEN-3, and DEN-4), of the genus *Flavivirus*. Infection with one of these serotypes provides immunity to only that serotype for life, so persons living in a dengue-endemic area can have more than one dengue infection during their lifetime. Dengue fever and dengue hemorrhagic fever are primarily diseases of tropical and sub tropical areas.

Long-term goals include defining the public health impact of the system through epidemiological studies for operational refinement. The program's main objectives are: the development of a novel laboratory assay system for detailed behavioral studies; the determination of the lowest ITM surface area and chemical dose required to repel and irritate adult *Ae. aegypti*; the validation of laboratory thresholds of spatial repellency and contact irritancy under field conditions using experimental huts; the optimization of an adult trap to remove host seeking *Ae. aegypti* from the peridomestic environment; and to quantify the effectiveness (measurable reduction of indoor mosquito populations) of an ITM push-pull system in an experimental small-scale trial.

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Located on the grounds of Bethesda's National Naval Medical Center ([NNMC](#)) and across from the National Institutes of Health ([NIH](#)) in Bethesda, Md, USU is the nation's federal school of medicine and graduate school of nursing. The university's nationally ranked military and civilian faculty conduct cutting edge research in the biomedical sciences and in areas specific to the DoD health care mission such as combat casualty, infectious diseases, and radiation biology. The university is committed to technology transfer to ensure that the results of research are made widely available.

The Henry M. Jackson Foundation for the Advancement of Military Medicine, Inc. (HJF; [www.hjf.org](http://www.hjf.org)) is a not-for-profit organization authorized by Congress to support military medical research and education at USU and throughout military medicine. HJF's technology transfer staff and the USU-HJF Joint Office of Technology Transfer encourage scientists and private industry to collaborate on research and development projects, with the goal of making innovative medical technologies available for public use

For more information about USU visit [www.usuhs.mil](http://www.usuhs.mil) or call (301) 295-1219. Information obtained from the Henry M. Jackson Foundation for the Advancement of Military Medicine.

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