• The efficacy of deltamethrin, the leading crystalline contact insecticide in combatting malaria vectors, is threatened by developing resistance of mosquitoes. New York University and University of Puerto Rico, Río Piedras MRSEC investigators discovered a more active crystalline polymorph of deltamethrin, obtained by simple melting and cooling of the known form. The new form, denoted DM II, speeds the knockdown of susceptible mosquitoes by more than ten times that of currently used DM I.

• Epidemiological modeling predicts that malaria transmission and human mortality will be significantly suppressed by use of the new crystal form. Moreover, environmental exposure will be reduced because less agent is required to achieve the same effect.

• The outstanding performance of DM II promises increased serviceable use of deltamethrin crystals for indoor residual spraying (IRS) for disease vectors. The development, evaluation, and introduction of new chemical compositions for malaria control is costly and incurs potential risks. Improving the effectiveness of compounds currently in use is preferable. The number of deaths from malaria in Africa this year is projected to double as a result of coronavirus-related disruptions to IRS programs, escalating the need for more effective interventions.