

Title of PhD project / theme	Locally sustainable management of tungiasis in Homa Bay, Kenya along with randomized controlled trial for local treatments
Supervisory team	Prof. Yasuhiko Kamiya, NU Dr. Michael Marks, LSHTM
Brief description of project / theme	<p>Tungiasis, one of the most neglected among all neglected tropical diseases, is caused by the penetration of female sand fleas (<i>Tunga penetrans</i>) into the skin, often of the feet, with an intense inflammation and pain. The disease predominantly affects marginalized people living in resource-poor communities such as rural semi-arid areas in Homa Bay County, Kenya. For topical treatment, dimeticone (silicon oil) proves to be efficacious, but is expensive for poor households. Healthcare workers in rural Kenya are using soda ash (5% sodium carbonate) + 3% hydrogen peroxide, or neem oil+coconut oil as locally available and affordable treatment, in addition to 0.05%KMnO₄ solution.</p> <p>However the efficacy of these treatments has not been validated. The project plans randomized controlled trial (three-arm non-inferior trial) to compare those locally exercising topical treatments (5% sodium carbonate + 3% hydrogen peroxide, and neem + coconut oil) with dimeticone, an active treatment in school-age children with tungiasis, funded by the Grant-in-Aid for Scientific Research (KAKEN). The primary endpoint will be evaluation and comparison of efficacy (cure rate) and safety (rate of adverse effect) in these treatments. The project will also attempt to improve the living environment through revival of traditional methods for hardening floors such as regular smearing with a mix of soil and cow dung and termite mound soil, along with community based health promotion with a focus on washing feet with soap following improvement of access to water.</p>
The role of LSHTM and NU in this collaborative project	With professional supervision from the perspective of clinical and epidemiological research on infectious diseases from researchers at LSHTM, NU will manage the project at the NU research site in Homa Bay, Kenya, where NU will start JICA partnership technical cooperation project for community based control of tungiasis for five years from early 2020, which aims to strengthen surveillance system and health promotion for tungiasis.

Particular <i>prior</i> educational requirements for a student undertaking this project	Skin care under medical or nursing care, Infectious disease /Infection control, Basic research design and ethics, Epidemiology & Statistics for trial/intervention study.
Skills we expect a student to develop/acquire whilst pursuing this project	Skills to design, conduct and evaluate randomized controlled trials (RCTs) along with critical ethical consideration. Field epidemiology, data management and analysis and more specialised skills depending on the nature of the final project.