

GEOGRAPHIC INFORMATION SYSTEM (GIS) MAPPING OF LYMPHATIC FILARIASIS ENDEMIC AREAS OF GAMPAHA DISTRICT, SRI LANKA BASED ON EPIDEMIOLOGICAL AND ENTOMOLOGICAL SCREENING

NDAD Wijegunawardana¹, YIN Silva Gunawardene¹, Aresha Manamperi¹,
H Senarathne³ and W Abeyewickreme^{1,2}

¹Molecular Medicine Unit, ²Department of Parasitology, Faculty of Medicine; ³Department of Geography, Faculty of Social Sciences, University of Kelaniya, Ragama, Sri Lanka

Abstract. The objective of this study was to develop a site directed geographic information system (GIS) map of lymphatic filariasis (LF) in Gampaha District, Sri Lanka as a guide for targeted control activities. Epidemiological and entomological screening of LF was carried out in nine pre-identified endemic areas in Gampaha District, using night blood screening and pool-screening PCR-ELISA. In total, 1,073 subjects (286 children, 787 adults) from 9 sites were examined. Positive cases were detected at 2 sites, with prevalence rates of 0.5% (Hekiththa) and 3.4% (Peliyagoda); the prevalence of microfilaria (mf) among adult *Culex quinquefasciatus* mosquitoes surveyed was 30%. The overall prevalence of mosquitoes with L1-L2 larvae of *W. bancrofti* ranged from 0% to 8.31% using dissection and point estimates of infection prevalence, and ranged from 0 to 32.4% using PCR-ELISA. The largest number of human cases was found at altitudes of 2.5-3.5 m in highly populated areas, where transmission appears to have taken place. Questionnaires indicated that limited community awareness of LF may be a reason for the fairly static infection prevalent among the local population. The GIS mapping of LF cases shows a considerable prevalence of LF and marked variability by geographic site in Gampaha.

Keywords: *Wuchereria*, filariasis, entomology, epidemiology, geographic information system

Correspondence: YIN Silva Gunawardene,
Molecular Medicine Unit, Faculty of Medicine,
University of Kelaniya, Ragama, Sri Lanka.
Tel: 94 11 2960483; Fax: 94 11 2958337
E-mail: nilminis@graduate.hku.hk,
nilminisg@gmail.com