A platform to integrate climate information and rural telemedicine in Malawi

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It is commonly accepted that climate plays a role in the transmission of many infectious diseases, particularly those transmitted by mosquitoes such as malaria, which is one of the most important causes of mortality and morbidity in developing countries. Due to time lags involved in the climate-disease transmission system, lagged observed climate variables could provide some predictive lead for forecasting disease epidemics. This lead time could be extended by using forecasts of the climate in disease prediction models. This project aims to implement a platform for the dissemination of climate-driven disease risk forecasts, using a telemedicine approach. A pilot project has been established in Malawi, where a 162 km wireless link has been installed, spanning from Blantyre City to remote health facilities in the district of Mangochi in the Southern region, bordering Lake Malawi. This long Wi-Fi technology allows rural health facilities to upload real-time disease cases as they occur to an online health information system (DHIS2); a national medical database repository administered by the Ministry of Health. This technology provides a real-time data logging system for disease incidence monitoring and facilitates the flow of information between local and national levels. This platform allows statistical and dynamical disease prediction models to be rapidly updated with real-time climate and epidemiological information. This permits health authorities to target timely interventions ahead of an imminent increase in malaria incidence. By integrating meteorological and health information systems in a statistical-dynamical prediction model, we show that a long-distance Wi-Fi link is a practical and inexpensive means to enable the rapid analysis of real-time information in order to target disease prevention and control measures and mobilise resources at the local level.