

Land Use Change & Infectious Diseases

Award Year:

2012

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Associated Program:

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Land-use change is rapidly converting forests and savannas into land whose primary focus is agriculture or production of other goods and services of direct benefit to the human economy. This significantly alters the interactions between the environment, disease vector species, and populations of humans and domestic livestock. The resulting changes in the infection dynamics of many vector- and water-borne disease systems lead to new opportunities for pathogen infections and only occasionally steer the dynamics towards pathogen reduction or eradication. In this Venture a team of natural and social scientists will bring together GIS data on land-use change with data on disease and vector distributions and host abundance in order to develop mathematical and heuristic models. The initial focus will be on malaria, schistosomiasis, cholera, Chagas disease and African trypanosomiasis. The team's goal is to understand the impact of land use change on disease ecology to minimize disease risk and maximize direct and indirect economic benefits. The framework developed in this effort will ultimately be adaptable to examine the interactions between land use change and a broad variety of pathogens.

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