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Title: A model for Leshmaniasis disease

Authors: Lourdes Esteva¹, Cristobal Vargas² and Cruz Vargas de León³

¹ Facultad de Ciencias, Universidad Nacional Autónoma de México

² Departamento de Control Automático, Centro de Investigación y de Estudios Avanzados-IPN

³ Unidad de Medicina Experimental, Hospital General Dr. Eduardo Liceaga

Abstract: Leshmaniasis is a parasite disease transmitted by the bites of sand fly bites. Around 70 animal species, including humans, have been found as natural reservoir hosts of Leshmania parasites. Among the reservoirs, dogs are the most important ones due to their proximity to the human habitat. Infection by leshmaniasis does not invariably cause illness in the host, and can remain asymptomatic for a long period specially in dogs.

In this work we formulate a model to study the transmission of the disease among the vector, humans and dogs. Our main objective is to asses the impact of asymptomatics and dogs on the spread of Leshmaniasis. For this end we calculate the Basic Reproduction Number of the disease and we carry out sensitivity analysis of this parameter with respect the epidemiological and demographic parameters.