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Modeling, Estimation, and Uncertainty: Challenges associated with Transmission Dynamics and Control of Leishmaniasis

Neglected tropical diseases (NTD) disproportionately affect more than one billion the world's poorest populations. Leishmaniasis is one of the NTDs, which is the second largest parasite killer (50,000 deaths annually, 2010). Mathematical modeling of Leishmaniasis transmission can play a central role in optimizing the utility of limited resources of a region in the presence of scarce and uncertain reported data. The talk will highlight that, when developing models for NTDs use, we need to pay careful attention to the intrinsic assumptions and ecological conditions embedded within modeling frameworks and how such assumptions have been beneficial to understanding of transmission dynamics of Leishmaniasis and eventual elimination. The study will also review the role of stochastic factors affecting the level of underreporting of the disease incidence.