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Mathematical formulation of parasite dynamics of Lymphatic Filariasis using the range modelling approach

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Lymphatic Filariasis is a parasitic disease with complex dynamics. Range modelling tactics provide a parsimonious way to cope with variations in such dynamical processes. A parameter for anti-L3 immunity has been formulated here. Relevant mathematics involves accumulation of infection modeled through a hyperbolic function to incorporate boosting and saturation. Range for immunological memory can be formed after deciding on the reliable minimum and maximum lifespan of the immature worm. Host age should also be incorporated to fine tune this memory range. More range modeling tactics can be formulated for parasite regulations in the vector mosquito and for anti-fecundity immunity too. Ultimately, computer simulations would be useful in choosing reliable ranges for different epidemiological settings of Lymphatic Filariasis.

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