Abstract

In this work we present a model formed by a system of differential equations that describe tha dynamic of 4 groups of individuals: susceptible, latent, infectious tuberculosis (pulmonary tuberculosis, to sputum-smear positive) and noinfectious (pulmonary but to sputum-smear negative or extrapulmonary). As considered here, the model makes possible to evaluate the influence of: reinfection cases, conversion of noninfectious for the infectious tuberculosis, different possibilities of treatments and the sucess or failure of these interventions. We also consider that cured individual remains infected, which means that they return to the category of the latent ones. In this way, we initially analyze the dynamics of the tuberculosis with treatment absence, considering only natural healing. Treatment´s influence is also presented considering that patients that do not complete treatment continues with the ilness (infectious or noninfectious). Results are presented using parameters found in the literature and in all analyzed cases we employ Monte Carlo´s Method to make uncertainty analysis which allow us to evaluate the uncertainty effect on the simulated parameters values for the outcome variables over time of the epidemiological model.