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**Shigui Ruan\*** (ruan@math.miami.edu), Department of Mathematics, University of Miami, Coral Gables, FL 33124. *Analysis of Rabies in China: Transmission Dynamics and Control.*

Human rabies is one of the major public-health problems in China. In this article, in order to explore effective control and prevention measures we propose a deterministic model to study the transmission dynamics of rabies in China. The model consists of susceptible, exposed, infectious, and recovered subpopulations of both dogs and humans and describes the spread of rabies among dogs and from infectious dogs to humans. The model simulations agree with the human rabies data reported by the Chinese Ministry of Health. We estimate that the basic reproduction number  $R_0 = 2$  for the rabies transmission in China and predict that the number of the human rabies is decreasing but may reach another peak around 2030. We also perform some sensitivity analysis of  $R_0$  in terms of the model parameters and compare the effects of culling and immunization of dogs. Our study demonstrates that (i) reducing dog birth rate and increasing dog immunization coverage rate are the most effective methods for controlling rabies in China; and (ii) large scale culling of susceptible dogs can be replaced by immunization of them (based on joint work with J. Zhang, Z. Jin, G.-Q. Sun and T. Zhou). (Received July 29, 2011)