

# **Transmission dynamics of dog rabies in Machakos district, Kenya**

Kitala, P; McDermott, J; Dye, C

Date: 1997

## **Abstract**

Rabies is still prevalent in most parts of the developing World, with approximately 4 million people in Asia, Africa, and South America receiving post-exposure treatment and over 30 000 dying after being bitten by rabid dogs (WHO, 1992). In Kenya, rabies has been common in Machakos District for at least 40 years. We have undertaken several studies in recent years to collect information on dog ecology, dog population dynamics and rabies epidemiology required to improve rabies control in this district (Kitala et al., 1993; Kitala and McDermott, 1995). Given this baseline data, mathematical models, often quite simple ones, can serve as a useful tool for predicting disease incidence under different natural and disease control scenarios (Anderson and May, 1991) and have been used to advantage in assessing rabies epidemiology, particularly in fox populations in Europe and North America (e.g. Anderson et al., 1981; Voigt et al., 1985). In this paper, we describe a simple deterministic model of rabies which incorporates both transitions between the main rabies disease states and dog population parameters, particularly thresholds for dog density. We compare model predictions to observed patterns of rabies in Machakos District and also explore the potential efficacy of different rabies control programmes.