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COST-BENEFIT ANALYSIS OF RABIES CONTROL

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Rabies control in developing countries is often poorly organized as a result of poor communication between the human and animal health sectors. Ministries operate with a narrow focus; for example, the Ministry of Health is unwilling to assume responsibility for an intervention outside of the public health sphere and the Ministry of Agriculture and Livestock prioritises cattle over dogs and wildlife. Neither is willing to allocate scarce resources to address a disease which is not their priority. An economic analysis of rabies control provides a framework to examine the benefits and costs of intervention. Benefits in terms of saved resources and human and animal lives across all affected public and private sectors can then be compared to intervention costs, considering potential sharing across sectors. Typically, interventions in dogs and wildlife translate into saved human lives in a non-linear way. Presented here is a cross-sector public and animal health economic approach to rabies control which is based on a dog-human transmission model linked with a cost-effectiveness analysis. It can be adapted to specific contexts and matched with the Blueprint for Rabies Prevention and Control (rabiesblueprint.com). Benefits in terms of saved human post-exposure treatment cost can be compared to costs for mass vaccination of dogs. Savings in human lives are expressed as saved years of life lost (YLL). Use of transmission models requires sufficient data for dogs, wildlife and humans collected over extended time periods and integrated study designs across human and animal health. Further extensions would include dog population management and wildlife conservation. The concept of benefits must then be expanded to value the lives of companion animals and wildlife conservation, both of which are part of ecosystem “integrity”. The result is movement into ecosystem-health approach to rabies control. Human-animal relationship is strongly determined by culture and religion. These influence animal populations and, therefore, indirectly rabies transmission, illustrating the complex interplays between natural science and humanities and supporting system dynamic approaches of health in social-ecological systems (HSES).

