A framework for the economic analysis of rabies control

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To inform decisions on resource allocation and add to evidence on rabies control, the World Society for the Protection of Animals needed a comprehensive economic assessment tool. Control of rabies, that causes spillovers from its animal host into human populations, requires not only technical means of control, but also understanding of economic gains and the role of human behaviour in disease transmission. A conceptual framework was developed including economic, dog welfare, epidemiologic, and social acceptability assessments as basis for making an ethical judgement on the control process. It was applied to a rabies control programme in Colombo City, Sri Lanka. The rabies control programme included vaccination and sterilisation of owned and unowned dogs; education to prevent dog bites; dog managed zones; and training of dog handlers. The impact of rabies and control efforts on dog welfare was assessed using a qualitative scoring system that combined field records, literature data and expert opinion. Surveys and focus groups were conducted to assess changes in acceptance of dogs in society and control options. Monetary outcomes of the programme were calculated considering medical costs related to post-exposure treatment (PET) and control expenditures. Non-monetary benefits were the change in disability-adjusted life years (DALYs) caused by psychological distress due to dog bites. Burden of human death was near zero as PET was provided by hospitals at no cost to the individual. From July 2007 to June 2011, 133 DALYs were avoided, acceptance of dogs increased, and the impact on dog welfare was reduced at a net cost to society of US$ 1.05 m (compared to the counterfactual). The lower number of dog rabies cases and estimated dog bites, and improvement in reporting and treatment of people indicated that the intervention was effective and the risk of people to contract rabies decreasing.