5.6 Evaluation

This section contains information on the following:

5.6.1. How can we find out if the canine rabies control programme has been successful?

Rabies surveillance plays a critical role in the evaluation of the programme and it is the key index for the success of any intervention. If not already in existence, a surveillance programme should be established (click here for more information). Decrease/absence of rabies requires verification and residual foci must be detected rapidly. There are a number of indicators described in this section that will help you determine the effectiveness of your programme. Note that these indicators relate to the dog vaccination component of the programme. Click here for guidelines on monitoring and evaluation of other components of dog population management programmes.

5.6.2. Has the programme reached enough dogs?

Mass vaccination programmes should reach an appropriate number of animals each year (at least 70%, but depending on the setting this threshold could be higher, e.g. in populations with very high turnover, or lower, e.g. in areas where dog movements are restricted) and maintain this level of coverage over time until rabies cases have been eliminated through frequent (at least annual) vaccination campaigns. Vaccination coverage should be determined prior to the start of the mass dog vaccination programme (although this may be difficult if an operational research strategy is chosen) and from then on after the onset of the campaigns following each campaign, e.g. each year if the campaigns are carried out annually. You may have to take into account dog immigration into your project area. If resources are limited and coverage cannot be estimated following each campaign, it is important that vaccination campaigns are still conducted. Click here for details of how to estimate vaccination coverage.

Photo courtesy of Serengeti Carnivore Disease Project

5.6.3. Has the programme had an impact on dog rabies cases?

The collection and analysis of data on dog rabies cases is important to help you determine whether the intervention has had an impact on dog rabies in the target area. These data need to be compiled before, during and after the campaigns to evaluate the impact over time. Data on rabies cases in other animal species should also be examined to evaluate the impact of dog rabies control on the incidence of rabies in other species.

5.6.4. Has the programme had an impact on human rabies deaths, bite exposures and demand for human post-exposure treatment?

Hospital records of human rabies cases and exposures from suspected rabid animals (during pre- and post-vaccination periods) are useful indicators of the relationship between mass dog vaccination and human rabies. In areas where no hospital records are available information may be gathered by household surveys as explained here. Human vaccine doses administered can be used to evaluate the cost- effectiveness of dog vaccination compared to prevention of human rabies through human rabies prophylaxis only. Analyses of data obtained from any unvaccinated areas compared to the target (vaccinated) areas can also be carried out, but care needs to be taken to interpret data from different areas where outbreaks may not have occurred or be directly comparable.

Photo courtesy of Serengeti Carnivore Disease Project

5.6.5. How well do dogs respond to vaccination?

The safety and efficaciousness of modern cell-culture vaccines produced according to WHO [1] standards (see here) currently used for parenteral immunization of dogs are widely recognised. It is therefore not necessary to conduct a serological confirmation of vaccination success. However, in some situations specific laboratory analyses may be indicated to examine sera from the target species (i.e. dogs) for rabies antibodies, specifically to measure antibody levels induced by vaccination. This may be necessary when evaluating the success of novel strategies (e.g. oral vaccination) and to ensure correct administration and maintenance of cold chain, and it is required for international movements of dogs. Click here to read more on monitoring and indicators of success of oral vaccination campaigns. It should be kept in mind that the collection of samples for these analyses can be operationally difficult and generally requires substantial investment in labour and capital: samples need to be collected pre- and post-vaccination at specific intervals and standard laboratory analyses (measuring neutralizing antibodies) are costly and currently can only be carried out in specialized laboratories (i.e. WHO Collaborative Centers for Rabies and OIE [2] reference laboratories for rabies, listed here). Because of the expense of serological surveys, it is a much

better investment to buy and use modern efficacious vaccines than risk jeopardizing campaigns with poorer quality vaccines produced by manufacturers not recognized by international regulatory agencies.

Photo courtesy of Serengeti Carnivore Disease Project

[1] World Health Organization

[2] World Organization for Animal Health