3.3. Costs and Funding

3.3.1. How much is a dog vaccination programme going to cost?

The cost of dog vaccination campaigns following a central-point vaccination strategy (which is the most cost-effective strategy) typically ranges between $2.00 - 7.00 US per dog vaccinated in a range of rural and urban settings as shown in these studies. This includes vaccine costs as well as consumable costs (vaccine, syringes, needles, certificates, registers, collars, stationery), delivery (staff costs, transport), storage (fridges, cool boxes), and sometimes societal costs (days of work lost) are also included. Usually the cost of the vaccine is a small fraction of the total cost of delivery programmes, with salary and transport accounting for most of the costs incurred (see Elser et al. reference here).

Costs/dog vaccinated are likely to increase significantly in rural areas with low population densities, or where the number of vaccinations carried out is low. Generally as programmes become more established the cost of vaccinating each dog drops.

Costs of house-to-house vaccination campaigns tend to be more expensive and vary widely between different communities, but may be necessary in some situations to reach sufficient vaccination coverage.

Not all consumables may be needed for every vaccination programme. The cost (in terms of money and/or staff time involved) of some consumables (for example dog collars) may not benefit the success of the campaign enough to be justified. Careful consideration of the time involved is necessary to increase the efficiency of campaigns, for example information on vaccination certificates could be pre-printed, so it does not need to be filled out by the vaccination team.

There may be opportunities to reduce costs, for example, through involvement of volunteers or community assistants in the vaccination campaign (described here), and careful consideration of logistics and transport costs. Well planned synchronized campaigns (described here) may also reduce costs.
It is important that costs are accurately recorded so that cost-benefit analyses of the campaign can be conducted at a later date.

Photo courtesy of the Serengeti Carnivore Disease Project

### 3.3.2. What are the costs involved in sterilisation programmes?

The cost of surgical sterilisation varies significantly with country, mainly due to differences in staff and drugs costs, and also depending on the number of animals being sterilised (e.g. significant savings can be made in high-throughput systems). In a range of medium to high-throughput systems based in developing world locations, the costs per surgical sterilisation was found to range from $3 - 15 \text{US} [1]$ for the medicines and consumables, at an average of $7.50 \text{US}$. The full costs (including veterinarians and veterinary support staff, clinic running costs, all medicines and consumables) ranged from $10 - 52 \text{US}$, with an average of $30 \text{US per sterilisation}$. Variation in clinic running costs was affected by clinic type: mobile clinics have benefits because they can reach a wider population of animals but they are more expensive to run than static clinics. See Abbass et al. [here](#) for an example of how sterilisation costs impact overall rabies prevention strategy costs.
3.3.3. What are the costs associated with post-exposure treatment?

The total cost of delivering an average PEP course (including consumables, salaries etc.) typically ranges between $35 and 65 US in Africa and Asia as shown in these studies, but costs can be over $100 US in certain settings (see Sambo et al. here). These estimates include the cost of biologicals and of their administration (materials for injection such as syringes, needles, swabs, etc. and staff salaries), and patient costs (transport costs to and from medical facilities and loss of income).

In most cases, the most significant fraction of the total cost of providing PEP is the cost of the vaccine itself (and RIG if provided) (see Elser et al. reference here).
3.3.4. To what extent is rabies prevention and control a priority and has secure funding?

In the majority of rabies-endemic countries, rabies is often not considered a priority because information on its local and global burden and impact is lacking. This has led to limited resources being allocated to rabies control.

However, rabies control is now accepted as a global health priority. It is now globally recognised that rabies greatly affects human and animal health sectors and has a large economic impact as shown in these studies. National and international policy makers should therefore be informed about the burden of rabies and the need for well-planned and sustained rabies control efforts and allocation of adequate resources.

Advocating to government policy makers for increased efforts to be put into rabies control may be necessary, and for this as much relevant data as possible about the impacts of rabies and the costs incurred in controlling it should be gathered. Where data gathering is not sufficient, it may be possible to use estimates of the burden, such as those provided for each country in the Hampson (2015) paper here.

In persuading policy makers to allocate funds to rabies control, arguments about the cost-effectiveness of control interventions may be very powerful. Even without a goal of elimination, dog vaccination is a cost effective strategy, as demonstrated here for African and Asian settings. There are also studies demonstrating the cost-effectiveness of PEP, see here. A joint report from WHO, OIE and FAO “The Rationale for investing in the global elimination of dog-mediated human rabies” (available here) may also support advocacy efforts.

A toolkit in how to approach policy makers to advocate for better rabies control is available here.

3.3.5. What sources of funding might be available for dog rabies control?

Funding for dog rabies control can come from many different sources:

- Government funding - Usually comes through the Veterinary Services, the Ministry of Health and/or other agencies of the public health sector. Strong interaction and collaboration between these two sectors can result in optimal use of resources since properly implemented mass vaccination of dogs can lead to large savings to the public health sector because of reduced demand for costly human vaccines and biologicals. Therefore, the design of interministerial financing mechanisms integrating both veterinary and public health sectors could provide a sustainable mechanism for rabies control. Because rabies outbreaks can affect tourism and animal welfare, additional funding could be sought through Ministries of Tourism and Natural Resources. Many governments have emergency funds available for
unexpected outbreaks. If rabies is a notifiable disease and therefore it is subject to particular laws and controls, the government accepts responsibility and government funding should be given priority. See also this section describing which factors are important in deciding whether a disease should be notifiable.

- Local government funding may be available.

- Local businesses and trusts

- Dog-related industries (pharmaceutical, pet food and pet insurance) may be willing to support the programme either financially or by providing resources (e.g. food, vaccines or medicines).

- External organizations (e.g. international and regional development organizations, international grant-making bodies) may provide funding for specific project costs or workshops, although they will unlikely support long-term running costs.

- NGOs working in animal welfare, human and animal health, wildlife conservation (where appropriate)

- Universities may provide funding or non-financial resources such as infrastructure, manpower and expertise.

- Private donors

- Dog owners - The cost of vaccination is a commonly cited barrier for many dog owners in low and middle income countries. In many settings, government sponsored mass vaccination campaigns may need to consider low-cost or free vaccination to achieve high levels of vaccination coverage. Click here to view studies comparing owner-charged and free vaccination campaigns. However, the community’s willingness to pay for vaccines should be assessed, and when possible, vaccination campaigns should attempt to be self-sustaining through nominal fee-for-service charges. Mechanisms for charging dog owners, for example through dog registration and establishment of community/village funds, could be considered (CASE STUDY PHILIPPINES). Charging a nominal fee can promotes a sense of ownership for the dog and may encourage dog owners to pay for private veterinary services in future years when government campaigns cease. In some programmes, a nominal fee charged to dog owners was used to pay and therefore motivate vaccinators, rather than to pay for vaccine.

- Emergency funding (outbreak situation or introduction into free areas). The EU and UK, for example, have emergency plans/financial packages to deal with disease outbreaks, which could potentially be supported by farmers tax.
In-kind support can also be used to reduce costs for governments. Donated or subsidized high-quality canine vaccines have been given to several countries by the OIE vaccine bank, see here.

3.3.6. What resources are needed to set up a rabies control programme?

The resources required will vary from country to country depending on the infrastructure already in place. They will generally include: capital equipment (e.g. vehicles, motorbikes, bikes, refrigerators, fluorescence microscopes), fuel, personnel, disposables (e.g. for vaccination, laboratory analyses, surgical sterilization), vaccine (animal and human), funds to support local subsistence and allowances of personnel involved, funds for meetings, training and community sensitization (including development of educational material), and office supplies if a rabies control programme office is established to ensure effective coordination of the programme.

3.3.7. How is the budget determined?

Before determining the budget, data on existing in-country operational capacity (i.e. available resources such as pre-existing diagnostic and medical facilities, trained personnel, inventories of government capital equipment and infrastructure for vaccine storage in each facility) should be compiled. The budget should be determined for each activity planned and all responsible agencies should be involved as funds for certain activities could be sought through specific agencies.

Footnotes

NGO - Non-governmental organization
EU - European Union
UK - United Kingdom
PEP - Post-exposure prophylaxis
US - United States
WSPA = World Society for the Protection of Animals