

## 3.1. Infrastructure

The following issues need to be addressed to design effective dog rabies control programmes.

**This section contains information on the following:**

- [3.1.1. What personnel might be available for carrying out dog vaccination campaigns?](#)
- [3.1.2. What infrastructure is needed for storage of vaccines?](#)
- [3.1.3. What personnel and infrastructure are needed for rabies surveillance?](#)
- [3.1.4. What infrastructure is needed for surgical sterilisation?](#)
- [3.1.5. What medical facilities are available for providing human post-exposure prophylaxis?](#)
- [3.1.6. How well-trained are personnel?](#)
- [3.1.7. Which laboratories are available for rabies diagnosis?](#)
- [3.1.8. What are the minimum requirements for laboratories performing basic rabies diagnosis?](#)
- [3.1.9. What is the minimum infrastructure for providing human pre- and post-exposure prophylaxis?](#)
- [3.1.10. What personnel should administer pre- and post-exposure prophylaxis?](#)

### 3.1.1. What personnel might be available for carrying out dog vaccination campaigns?

- ▶ Government Veterinary Services and Zoonoses Departments – Vaccination campaigns should be under the overall supervision of veterinarians, but other staff will be needed to assist during campaigns.
- ▶ Private veterinary practitioners are generally involved in vaccination of owned dogs in clinics, but could also be involved in mass vaccination campaigns, which can provide opportunities to engage with new potential clients and provide additional clinical services during a campaign.
- ▶ Paravets, livestock officers, agricultural extension officers and veterinary assistants.
- ▶ Public health sector, e.g. health promoters ( [CASE STUDY COLOMBIA](#) ).
- ▶ Community-based assistants ( [CASE STUDY TANZANIA](#) ).
- ▶ NGOs [\[1\]](#).
- ▶ Volunteers - Volunteers can play an immensely valuable role in vaccination campaigns, although the use of non-professional volunteers as vaccinators may need to be authorized by the authorities ( [CASE STUDY PHILIPPINES](#) ).
- ▶ Volunteer veterinarians and veterinary nurses from overseas may be a source of short-term support.
- ▶ Veterinary Schools or University staff – Veterinary students may be involved as part of their training ( [CASE STUDY ZAMBIA](#) ) ( [CASE STUDY PHILIPPINES](#) ) ( [CASE STUDY](#)

[TURKEY](#)) ( [CASE STUDY TURKEY](#) ).

- ▶ Federal resources (e.g. the army).
- ▶ School children ( [CASE STUDY TURKEY](#) ).



**Photo courtesy of Serengeti Carnivore Disease Project**

[1] Non-governmental Organisation

### **3.1.2. What infrastructure is needed for storage of vaccines?**

Refrigerators will be needed in sufficient quantities for storage of large volumes of animal/human vaccines. If electricity is not available, kerosene and gas units are good options. Refrigerators with freezer compartments are useful for freezing of ice-packs for maintenance of cold-chain in the field, but the freezer compartments should never be used to store vaccines.



### **3.1.3. What personnel and infrastructure are needed for rabies surveillance?**

Trained personnel is required for implementation of rabies surveillance operations including staff responsible for data and sample collection, personnel in charge of gathering and analysing the data and laboratory staff whose primary responsibility is to perform rabies diagnosis. Click [here](#) for more information on rabies surveillance personnel. Infrastructure needs to be in place and strategies must be agreed upon amongst responsible parties to ensure swift and effective data reporting flows. Essential infrastructure includes electricity, transport infrastructure, communication tools such as phone and computing networks and office/laboratory infrastructure.

### **3.1.4. What infrastructure is needed for surgical sterilisation?**

Reproductive control using surgical sterilization requires specific infrastructure and equipment which is described [elsewhere](#).

### **3.1.5. What medical facilities are available for providing human post-exposure prophylaxis?**

Specific anti-rabies clinics, emergency rooms in hospital and clinics, private physicians, all of which must have available a good cold chain and well trained personnel for maintaining and administering vaccine.

### **3.1.6. How well-trained are personnel?**

Personnel involved in a canine rabies control programme (including veterinary, medical and technical staff) should have received specific training in all relevant tasks, which are described [here](#).

### **3.1.7. Which laboratories are available for rabies diagnosis?**

Regional laboratory facilities, national rabies laboratories, WHO [1] Collaborating Centers for rabies and OIE [2] reference laboratories. In most countries, diagnosis should be undertaken by a regional laboratory. All positive samples should then be sent to the national reference laboratory for that country for confirmation and, if the local infrastructure is adequate, further characterisation. The national rabies laboratory should finally report to OIE/WHO. Information about the location of regional and national diagnostic laboratories can generally be obtained through Ministries of Health and/or Agriculture. WHO Collaborating Centers may provide support with characterisation of viruses and methods have been developed, i.e. brain suspensions deposited on filter paper (FTA) cards, for safe storage (at room temperature) and dispatch of samples to international laboratories. WHO Collaborating Centers can also assist with provision of reagents and training, e.g. laboratory twinning initiatives matching laboratories in developing countries with expert institutions to enhance diagnostic capacity ( [CASE STUDY GERMANY - TURKEY](#) ). Click [here](#) for the list of WHO Collaborating Centers.

[1] World Health Organization

[2] World Organization for Animal Health

### **3.1.8. What are the minimum requirements for laboratories performing basic rabies diagnosis?**

Laboratory work with rabies virus poses a certain risk to the health of the staff and the environment, therefore efforts should be made to minimize the risk of exposure to infectious material (to prevent human disease) and of possible release into the environment. When new laboratories are being established, it would be prudent to seek advice from the relevant national regulatory and competent international authorities (e.g. OIE [1]). For rabies, laboratory-associated rabies infections are extremely rare. Vaccination is required for all technicians and is protective. In appropriately trained laboratories, testing of suspected rabid dead animals does not pose a high risk for further spread of the disease. Therefore, although biosafety level 3\*\* (BSL) laboratories are preferable, BSL2 laboratories (click [here](#) for a schematic view of a BSL2 laboratory) are adequate with at least the

following requirements:

- ▶ Vaccination of laboratory staff and monitoring of immunity according to WHO [2] recommendations.
- ▶ Separate laboratory for handling and storing rabies infected tissues.
- ▶ Limited access to laboratory (authorised staff only).
- ▶ Entering of rabies laboratory through dressing room (change of laboratory clothes when entering and leaving the rabies laboratory) and use of additional personal protective equipment in the laboratory (e.g. glasses, masks and gloves).

Click [here](#) for information on the equipment, supplies and protocols needed in the rabies laboratory and [here](#) to read more about international recommendations for laboratory biosafety and biosecurity.

[1] World Organization for Animal Health

[2] World Health Organization

### **3.1.9. What is the minimum infrastructure for providing human pre- and post-exposure prophylaxis?**

Human clinic or out-patient facilities with the ability to administer vaccines in a sterile manner and equipment for storing vaccines adequately. Click [here](#) for information on the supplies needed for a clinic administering human prophylaxis and [here](#) for guidelines on management of animal bite wounds and human rabies prophylaxis.

### **3.1.10. What personnel should administer pre- and post-exposure prophylaxis?**

Medical personnel trained in the administration of vaccines, primary wound care and administration of RIG [1]. In particular, they should understand that all wounds require proper wound care and that RIG should be administered to all cleaned bite wounds prior to suturing. Furthermore, medical personnel should be aware that wound suturing is not advisable if avoidable and in cases where necessary then RIG should be administered. Personnel responsible for administering rabies vaccine intradermally should have received specific training in this method of administration.



**Photo courtesy of Serengeti Carnivore Disease Project**

[1] Rabies Immunoglobulin