Preparation for Vaccination

It is vital to the success of a vaccination program that all important stakeholders are included in the planning stage. The best strategy to use for carrying out the vaccinations will vary depending on the size of the village (smallest administrative division), the nature of the dog population (percentage of owned/un-owned, roaming/indoors dogs) and the resources available.

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   2.1 Estimating the number of dogs to vaccinate
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Key points
- A plan must be carefully developed and documented before the vaccination begins.
- Local culture and attitudes towards dogs must be considered when
- All stakeholders need to be involved in the planning process and the community kept informed.
- **Staff should be trained** in humane dog capture and handling, administering vaccinations and risk management in relation to rabies; and have a good knowledge of rabies and the program.
- High quality, inactivated (killed) vaccines providing at least 1 year immunity should be used (OIE, 2013).
- Vaccinations within a defined area should be carried out in as short a time as possible.

Related guides
Education and Messaging
Vaccine Storage, Transport and Handling
Vaccination Day
Dog Capture and Handling
1. Community preparation

Developing a strategy and plan

At least two months before the vaccination program is due to begin, an initial meeting should be held between those organising the vaccination program and the local administrative body and/or community leaders so that a strategy for implementing the program can be agreed upon and a plan developed.

The Strategy must ensure:
- efficiency in achieving vaccination coverage – with all dogs seen vaccinated
- uniformity of vaccination coverage across the target area
- that roaming/outdoor dogs and puppies are prioritised for vaccination
- that local culture and attitudes towards dogs are considered.

The Strategy should be determined by the following factors:
- The estimated number of dogs in the area (see ‘Methods for estimating population size’).
- The estimated percentage of dogs that are owned and confined, owned and roaming, and unowned
  - Accessibility of the owned dogs (i.e. behind gates or in homes) and time/days when owners most likely to be present
- Characteristics of the location: demarcation of villages, size of the area, density of dogs
- Expected ease of handling the dogs (i.e. what handling methods may be needed)
- Likely community support and mobilization

A Plan needs to be developed based on the Strategy. The Plan needs to cover the following (you may have one general plan plus one plan for each day /village):

**Staff**
A description of all teams and staff required, including ideal recruitment, and training (see ‘Staff & Training’)

**Target**
The target coverage of the area must be at least 70%

**Duration**
How long the vaccination program will last (Note: All vaccinations should be completed in as short a time possible. For example, completing coverage over several months reduces effectiveness as it allows time for new dogs to enter the area, including puppies, and for vaccinated dogs to die).

**Materials**
The materials required (see ‘Resource preparation’ in this guide)

**Public awareness**
Methods for raising public awareness around the program and rabies prevention in general (see guide Education and Messaging).

**Methods**
A detailed plan of how the vaccination team will operate in each village including:
- Any fixed vaccination posts (Note: Fixed vaccination posts typically target dogs that are easily handled and have willing owners. They are best used along with mobile vaccinations to target all dogs)
- Mobile vaccinations and how vaccination teams will cover the area:
  - roaming / outdoor owned and un-owned dogs – which dog capture and handling methods will be used (see guide Dog Capture and Handling)
  - house to house visits for indoor owned dogs
- Information to be recorded – vaccination record, registration forms
Informing community members

It is vital that well before the vaccination teams arrive (at least one month is recommended), people in the target communities are fully informed of the purpose and benefits of the program and how it is likely to affect them and any dog/s that they own or that are roaming in their communities. You will need community cooperation! (See guide Education and Messaging).

Making the plan public

The plan for the vaccination program should be posted in a public place (such as a mosque, church or temple) well before the program begins. This should include details on how anyone can get further information about the program (such as contact details for the Community Liaison Officer – see below). Loud speaker messages can also be used. It may also be effective to communicate details of the program to school classes and women’s groups, as they can spread the message in their villages.

Community Liaison Officer

This person should be friendly in nature, have very good communication skills, and be well respected.

It is recommended that a Community Liaison Officer is assigned to:

- Consult local authorities to understand existing community networks and how best to mobilise their support
- Brief the community on the details of the vaccination program
- Inform the community about:
  - the nature of rabies including how it affects human and dogs, and bite management
  - rabies control through MDV
  - the importance of reporting suspect rabid dogs
- Act as the contact person for further information/questions
- Survey community members post program and collect personal stories
- Identify community ‘champions’ that help advocate the program to this and ideally subsequent villages.

Details of the vaccination plan that should be explained to the community includes:

- The method of dog capture and handling for roaming dogs
- Days, times and methods for vaccination (and registration) of owned dogs (including the locations of any fixed vaccination posts)
- How long it takes for vaccination to take protective effect (i.e. 2 to 3 weeks)
- How the program will affect the community both short term and long term (i.e. follow-up vaccination programs, how long it takes to reduce the number of rabies cases)
- Actions to take if bitten by a dog. (People still need to seek treatment if bitten by a dog)
- How and to whom to report a suspect case of animal rabies.
Rabies education
Resources are available from World Animal Protection to help you to explain the nature of the disease and the importance of rabies control measures. Also see the Global Alliance for Rabies Control (GARC) website and the Rabies Educator Certificate.

2. Resources: Vaccines, equipment, staff & training

Estimating the number of dogs to vaccinate
An estimate of the number of dogs (including owned, unowned and roaming) in the target area is needed to calculate the target number of dogs to vaccinate and hence:
• the number of vaccines to buy
• the number of staff required
• the number of vaccination days needed.

For the first vaccination round in an area, you will need to use one of the methods detailed below to estimate population size.

For the second vaccination round, the estimated population size from the postvaccination survey of the first round can be used (see guide Postvaccination: Estimation of Vaccination Coverage).

For third and subsequent rounds, aim to vaccinate the number vaccinated in the last round plus 10–20% (to account for population increase).

Minimum number of dogs to vaccinate for 70% coverage = estimated population size x 0.7
(For example, if the estimated population size is 1500, you need to vaccinate at least 1050 dogs.)

Methods for estimating population size — First vaccination round*
For the first vaccination round, there are a number of approaches for estimating dog population size — though none are ideal and tend not to account for puppies (which can be 20–40% of the population at given times of the year). It is recommended that you use more than one of the following methods and use the highest estimate.


Human:Dog ratio
• Generally, most dogs are owned or known within the community. Therefore ask the community leader how many households are in the village, the approximate proportion of households owning dogs and the average number of dogs in each household. Also ask about the numbers of roaming unowned dogs.
• See estimates of human:dog ratios per country at GARC, Canine Rabies Blueprint, Human Dog Ratios.

Note: An ‘upper-bound’ of dog population size should be used, i.e. ‘I estimate there are no more than ‘N’ dogs in this village’. This allows for some contingency.

Registration or census data
If available, the estimated population size can be taken from municipality data on dog registration or census data (which may slightly underestimate the community or roaming dog population).
Surveys
Dog numbers can be assessed quite quickly by staff during the planning phase of the program (allowing enough time to order the vaccines) by conducting a house-to-house survey or zig-zag survey of the village.

House-to-house survey
This method is best for villages where most dogs are owned, but will not get an accurate estimate of stray dog numbers. Utilising the assistance of village leaders, asking households about their dog ownership and dogs they know of within the area is an accurate way to estimate population numbers.

For each house record:
- Owner’s name
- No. of owned dogs
- Sex and approximate age of owned dogs
- Whether dogs are indoor or outside / roaming dogs

Simple transect (zig-zag) survey (WSPA, 2007)
This method is best for urban areas where there are many parks, rubbish dumps, markets etc. where dogs are found. (Note: This method can be quite inaccurate – through underestimation – but it can be valuable for identifying areas with high numbers of roaming dogs.)

Time: Surveys are best carried out during the cooler hours of the day when the dogs are active and their owners are likely to be at home (for example, early morning and late afternoon / early evening).

Method:
Counters (at least two) should:
- Move through the village making a zig zag across the length and width of the village to ensure there is no bias for certain parts.
- Use a method of travel to allow them to move at a reasonable rate of progress to reduce the number of times a dog is seen more than once but also allow a thorough search. Walking will allow for a thorough count but is slow. Cycling and walking the bike, when needed, is a good compromise.
- Stop to ask local people to about their knowledge of both roaming and confined dogs in the area.
- Move quietly and inconspicuously so as to not scare off dogs.
- Move down every street, counting each dog they see and searching for dogs in potential hiding places (e.g. undercars, in drains). Avoid recounting the same street.
- Visit all areas in the course of the transect including beaches, markets, slaughterhouses, hospitals, mosques/temples/churches, and construction sites.
- For open public areas such as parks or waste ground, it is usually possible to scan effectively from a vantage point or by walking across them.

Add 20% to the figure gained through the survey to account for underestimation.


*For the second and subsequent vaccination rounds*
For the second vaccination round, the estimated population size from the postvaccination survey from the first vaccination round in the same area should be used. Add around 10% to this figure to take account for possible underestimation, and new dogs (such as puppies) entering the area.
For example, for Area A:

- Round 1 (in 2013) the postvaccination survey estimated the dog population to be 1450.
- Round 2 (in 2014)
  - Estimated population size is 1450 x 1.1 (adding 10%) = 1595
  - Minimum number of dogs to vaccinate is: 1595 x 0.7 (70%) = 1117

For the third and subsequent vaccination rounds: Aim to vaccinate the number of dogs vaccinated in the previous round plus at least 10%.

- For Round 3 (in 2015)
  - Assume total dogs vaccinated in Round 2 (in 2014) was 1150
  - Minimum number of dogs to vaccinate is: 1150 x 1.1 = 1265

**Materials/equipment**

Once the number of dogs to be vaccinated has been estimated, use this table to determine the quantity of materials you will need per 100 dogs.

<table>
<thead>
<tr>
<th>Material/equipment for one team to vaccinate 100 dogs</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccines - including registration number from relevant authority</td>
<td>110</td>
</tr>
<tr>
<td>Note: Use high quality, inactivated (killed) vaccine giving at least 1yr immunity (OIE, 2013). Although some vaccines can provide up to 3yr immunity, an annual booster is recommended.</td>
<td></td>
</tr>
<tr>
<td>Box of Disposable Needles 21:23 G, one per dog vaccinated.</td>
<td>110</td>
</tr>
<tr>
<td>Disposable Syringes (ideally use one per dog, however one per maximum 10 dogs is acceptable if no blood in the hub) in a box or plastic bag.</td>
<td>22-110</td>
</tr>
<tr>
<td>Safety box: Hard plastic containers (ideally medi-waste containers) for used needles/syringes</td>
<td>2</td>
</tr>
<tr>
<td>Gloves - disposable (non-sterile) – range of sizes</td>
<td>20 pairs</td>
</tr>
<tr>
<td>Cotton wool</td>
<td>500g</td>
</tr>
<tr>
<td>Collars – for adult dogs only</td>
<td>110</td>
</tr>
<tr>
<td>Scissors (if collar is type that requires length cut)</td>
<td>2 per team</td>
</tr>
<tr>
<td>Clamps (2 per set): For attaching collars through nets</td>
<td>One set per dog handler</td>
</tr>
<tr>
<td>Non-toxic paint spray can or gentian violet – for puppies and/or adult dogs caught by nets</td>
<td>3 cans</td>
</tr>
<tr>
<td>Rope leash</td>
<td>5</td>
</tr>
<tr>
<td>Catching nets (and materials to repair nets)</td>
<td>2</td>
</tr>
<tr>
<td>Muzzle, using 2&quot; gauze bandage (non-stretch)</td>
<td>10 metres</td>
</tr>
<tr>
<td>Cool box, cool packs, thermometer x 2 as per guide Vaccine Storage, Transport &amp; Management</td>
<td>1 per team</td>
</tr>
<tr>
<td>Human FirstAid box including soap, water, towels, band aids, cotton wool, bandages, antibacterial cream, antiseptic</td>
<td>1 per team</td>
</tr>
<tr>
<td>Tables and chairs for fixed vaccination posts</td>
<td>1 table &amp; 2-3 chairs each</td>
</tr>
<tr>
<td>Advertisement board or poster for advertising vaccination program and identifying any if fixed posts</td>
<td>2 per team</td>
</tr>
<tr>
<td>Record sheet for vaccinations</td>
<td>1 per team</td>
</tr>
<tr>
<td>Vaccination cards / certificates</td>
<td>100</td>
</tr>
<tr>
<td>Registration forms (in duplicate)</td>
<td>100</td>
</tr>
<tr>
<td>Pens and clip boards for writing certificates</td>
<td>2</td>
</tr>
<tr>
<td>Education materials on vaccination, rabies symptoms, bite prevention &amp; treatment</td>
<td>200+</td>
</tr>
</tbody>
</table>
Vaccine storage, transport and management
Refer to the guide Vaccine Storage, Transport & Management.

Staff & training
It is important to carefully plan the recruitment of staff and investment in training to ensure a highly skilled team is developed that can be used for future vaccination programs. The number of staff required will vary with the budget, ease of handling of the dogs and other features of the strategy. However, the following can be used as a general guide:

Vaccination teams
Mobile vaccinations: It is recommended that each vaccination team comprises 4–6 individuals (with one team for approximately every 100 dogs):
- 1 recorder and communication person
- 1–2 vaccinators, ideally a vet, or if unavailable a trained veterinary technician or vaccinator. They will also be responsible for managing the cold chain
- 2–4 dog catchers/handlers, with more handlers required for roaming dogs and if owners are commonly unable to handle their own dogs for vaccination.
- Where motorbikes are used, some team members can be riding a motorbike while others are passengers.

Fixed vaccination posts: For fixed vaccination posts, you will not require dog catchers, and may be capable of vaccinating more than 100 dogs in one day. It is recommended that you have:
- 1 recorder and communication person
- 2 vaccinators, ideally a vet, or if unavailable a trained veterinary technician or vaccinator. They will also be responsible for managing the cold chain
- 2 handlers, with more handlers required if owners unable to handle their own dogs for vaccination.

Vaccination coordinator
It is recommended that you have one coordinator for every three or so vaccination teams. The coordinator is ideally a veterinarian – as any vaccination teams that do not include a veterinarian, will need easy access to one. The coordinator is responsible for local scheduling, communication with community leaders, preparing and resourcing vaccination teams, team safety, and data recording and submission to a central point.

Training
Staff will need to be trained in humane dog capture and handling, administering vaccinations and risk management in relation to rabies, and have a good knowledge of rabies and the program.
- **Dog capture & handling**: It is vital that staff are trained in using capture and handling procedures that reduce the risk of bites from potentially rabid animals, reduce stress to the animals and to make vaccination as easy as possible. (See the guide Dog Capture and Handling).
- **Administering vaccinations**: It is best for the vaccinations to be administered by a veterinarian but, when sufficient vets are not available, other staff may need to be trained in the correct procedure for giving the vaccinations. (See the guide Vaccination Day.)
- **Rabies knowledge**: Staff should have basic knowledge about rabies and prevention, and the benefits of MDV and ineffectiveness of culling, as they will act as the main communicators with the public.
- **Suggested training resources** can be obtained from World Animal Protection.
Rabies prevention and treatment
It is strongly recommended that all staff involved in capture, handling and vaccination of dogs complete pre-exposure vaccinations.

Actions if bitten or scratched: All staff should be educated in the actions to be taken if themselves, other staff or any members of the public are bitten or scratched by a dog (this includes staff who have received pre-exposure vaccinations).
1. Immediately wash the wound under running water for 15 minutes with soap.
2. If readily available, use ethanol (700ml/l) or iodine (tincture or aqueous solution) to disinfect the wound.
3. Report to the bite centre / medical clinic for an assessment of the need for PEP vaccination immediately.

Also see WHO ‘Current strategies for human rabies pre and post-exposure prophylaxis’.

Survey teams
Each survey team should consist of one officer to record and one motorcycle driver (unless on bicycles).

Survey coordinator
One survey coordinator is recommended for every 5 to 10 survey teams. The coordinator should be responsible for:

• scheduling surveys, preparing and resourcing teams
• ensuring prompt data collection and feedback to vaccination teams on coverage achieved
• analysing patterns in coverage – including whether some vaccination teams are consistently achieving low or high coverage and amending/learning from their strategies to improve vaccination coverage overall

Note: If one key data coordinator for the program is preferred, this coordinator can also be responsible for the collection, storage and reporting of data received from the Vaccination Coordinator.

References


