



Department of Animal Health and Livestock Development

# Controlling Newcastle Disease in Village Chickens



## A Manual for Extension Workers

Ministry of Agriculture and Food Security,  
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## TABLE OF CONTENTS

Abbreviations .....	2
1. Introduction.....	3
2. Instructions on the Use of I-2 Thermotolerant Newcastle Disease Vaccine for Vaccination of Village Chickens.....	7
3. Extension Messages .....	9
4. The Price of the I-2 Vaccine .....	13
5. Guide to Organizing a Vaccination Campaign against ND.....	14
6. Community Involvement in Planning, Implementing and Monitoring and Evaluation.....	17
7. A Guide to the Field Diagnosis of ND .....	24
8. Comparison of Various ND Vaccines .....	25
9. Dealing with Surplus Chickens and Eggs once your ND Control Campaigns are an Ongoing Success.....	26
10. A Guide to the Collection and Submission of Samples for the Laboratory Diagnosis of ND.....	27
11. Introduction to the Control of Other Diseases of Village Chickens.....	31
12. Guide to Filling in the Monitoring Sheets for ND Control Campaigns ...	33
13. Avian Influenza (Bird Flu): Questions and Answers .....	50
14. Information Relating to HIV/AIDS .....	52
15. Living with HIV/AIDS .....	55

## Abbreviations

ADD	Agriculture Development Division
AEDC	Agriculture Extension Development Coordinator
AEDO	Agriculture Extension Development Officer
AVO	Assistant Veterinary Officer
°C	Degrees Celsius
CAHLDO	Chief Animal Health and Livestock Development Officer
CVL	Central Veterinary Laboratory, Lilongwe
DAHLDO	District Animal Health and Livestock Development Officer
EPA	Extension Planning Area
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
I-2	Thermotolerant, live, vaccine produced locally for vaccinating village chickens against Newcastle disease
M&E	Monitoring and Evaluation
MK	Malawi Kwacha
ND	Newcastle disease
PRA	Participatory Rural Appraisal

# 1. Introduction

## 1.1 THE ROLE OF CHICKENS IN RURAL MALAWI

In Malawi, the estimated poultry population is 44,672,000, of which about 35 million are local village chickens (2010/2011 Ministry of Agriculture APES figures). It is estimated that about 50 percent of the households keep chickens in Malawi.

The population of rural chickens fluctuates widely from season to season mainly due to the periodic occurrence of Newcastle disease (ND). Other losses result from predators and management factors (such as nutrition, feeding, housing etc.).

There are several distinctive advantages of family poultry husbandry and poultry products, with respect to meeting the increasing demand for food, such as:

- There are no religious objections to the consumption of poultry;
- Both poultry meat and the eggs contain protein of a high biological value;
- Women and children are often in charge of the family poultry. This provides them with a (part-time) income opportunity. Also, the family poultry form an important source of protein for women and children;
- The production of poultry products is a relatively efficient and fast way to turn raw materials into animal protein: poultry has a low feed conversion compared to other livestock (conversion is the number of kg of feed necessary to produce 1 kg of meat or 1 kg of eggs);
- No cold chain is needed as healthy birds can be transported and sold alive;
- Poultry litter is a very efficient fertilizer; and
- Farmers are, in principle, more willing to sell poultry and poultry products. Poultry represent a regular cash flow, whereas ruminants represent more of a capital reserve.

Other uses of local chickens in Malawi are:

- To meet expenses of attending a traditional healer. In such cases only black, red or white chickens may be used;
- Some groups use parts of the chicken, often mixed with medicinal plants, as traditional therapies against human diseases particularly children's illnesses, female infertilities, abnormally prolonged menstrual periods and simple fractures;
- Local chickens play an important role in social life in villages during ceremonies, rituals, in traditional healing and gifts to respected guests.

The rural chicken supplies about 13-20% of the urban requirements for meat and eggs and 100% of the rural demand. It is generally accepted that the taste of village chickens is superior to commercial chickens and therefore the former fetch a higher market price.

## 1.2 THE IMPORTANCE OF NEWCASTLE DISEASE (ND) IN VILLAGE CHICKENS

There are many constraints to village chicken production including a range of diseases, internal and external parasites, poor nutrition and predation. However, the main constraint to production of village chickens in rural areas of Malawi is ND. When outbreaks occur there is a high mortality of chickens and this discourages farmers from investing much time or money in their flocks. Once the dramatic losses caused by ND can be controlled, farmers will be more receptive to other messages concerning improved poultry production. These small backyard industries could be further developed and villagers would benefit from more birds being available for sale or home consumption.

The disease shows seasonal occurrence with peaks between August and November, with mortality rates of 60-90% in adult birds and often 100% in young birds. There is no cure for this disease and vaccination remains the best form of control in Malawi.

Even though it is widely accepted that ND is a problem, control of ND in village chickens in the past had very limited success. Most of the vaccines used were heat-sensitive and supplied in droppers containing a large number of doses (usually 1,000 doses), which were not affordable to most rural farmers. Because of the heat sensitivity of these vaccines, it was not possible to vaccinate small numbers of chickens in dispersed rural households.

The I-2 vaccine is thermotolerant, meaning that it can tolerate more time outside of the refrigerator compared to other vaccines. Although the I-2 vaccine should still be treated carefully, its thermotolerance means that it can be used to vaccinate village chickens in dispersed areas. The vaccine also comes in easy to use containers with a smaller number of doses (300 doses), thus making it practical for local farmers to be trained to vaccinate birds in their villages.

## 1.3 AN INTRODUCTION TO NEWCASTLE DISEASE

1. **The clinical signs of ND** vary considerably according to the type (virulence and tropism) of the ND virus involved, the species, age and immune status of the bird, and environmental conditions. As a result, none may be regarded as a specific sign of ND.

- Chickens infected with virulent ND virus strains may die without showing any signs of illness;
- The chicken fluffs its feathers and appears to 'have its coat dragging on the ground' (Figure 1);



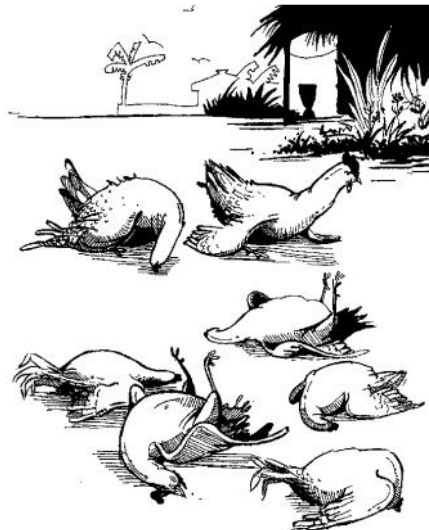
*Figure 1: Farmers in many parts of the world observe that a chicken with ND 'has its coat dragging on the ground.'*

- Sleepy (lethargy) and not eating (inappetence);
- Slight difficulty breathing (respiratory signs such as mild rales and snick can be detected by careful observation);
- Severe respiratory distress and gasping;
- Swelling of the head and neck;
- Greenish diarrhoea;
- Marked decrease in egg production. Sometimes deformed eggs may be produced;
- Shaking (nervous signs of tremor), torticollis, convulsions and paralysis of wings and legs will not be seen until the disease is advanced (Figure 2);



*Figure 2: Torticollis is generally seen in chickens only when ND is at an advanced stage.*

- Mortality may be very high, often reaching 50 to 100% (Figure 3); and



*Figure 3: When mortality of 50 to 100% is observed in a flock of chickens, ND virus is almost always the cause.*

- Other domestic poultry such as turkeys and pigeons may also be affected. Normally ducks are resistant to the disease but on occasions, ducklings may be affected.

**Note:** Usually it is ND that causes high mortality in chickens, but it is important to remember that Bird Flu (i.e. Highly Pathogenic Avian Influenza) causes high mortality in chickens and other poultry. More information on Bird Flu can be found in Chapter 13.

**2. Post-mortem findings** are characteristic but not definitive. ND can be suspected if the following lesions are encountered, particularly in combination (and when the flock history is also consistent with an ND outbreak):

- Reddening (congestion) and clear watery fluid (mucous exudates) in the trachea;
- Congestion of the lungs (heavier than normal; lungs sink in water/formalin);
- Haemorrhages of the mucosa of the proventriculus;
- Haemorrhagic and necrotic ulceration of lymphoid patches of the intestine, caecal tonsils and bursa of Fabricius; and
- Congested ovarian follicles in chickens in lay.

The clinical signs and post mortem lesions vary according to the strain of the ND virus and also according to the age of the chicken, its immunological status (e.g. whether it has been vaccinated against ND previously or survived a previous infection with a field strain), its nutritional status and current environmental conditions (e.g. very hot or cold weather, etc).

**3. The transmission of Newcastle disease** can occur easily. The major transmission routes include:

- Breathing contaminated air;
- Drinking contaminated water;
- Consuming contaminated feed;
- Contact with infected birds
- Contact with contaminated products such as meat, intestines, eggs and feathers;
- Contact with people carrying the virus on their shoes or clothes; and
- Contact with contaminated equipment such as vehicles, cages, baskets, bicycles, etc.

### **1.3 HOW TO USE THIS MANUAL**

This manual contains various documents that describe the basic information about vaccinating village chickens with the I-2 vaccine. It is designed for use in the field by extension agents and livestock officers and each document can be easily photocopied for wider distribution.

## 2. Instructions on the Use of I-2 Thermotolerant Newcastle Disease Vaccine for Vaccination of Village Chickens

I-2 Vaccine contains the avirulent (non-harmful) thermotolerant (can stay out of the fridge for longer periods than other vaccines) strain of Newcastle disease virus.

### 2.1 PRESENTATION

I-2 thermotolerant vaccine is supplied in an easy to hold plastic container with a secure sealed cap. The tip of the container is used as a dropper for easy and hygienic administration of the vaccine.

### 2.2 STORAGE

The I-2 vaccine is supplied as a wet (liquid) vaccine. This vaccine is thermotolerant, but still there is a need to keep it under cold storage for longer durability.

### 2.3 RECOMMENDED STORAGE TIMES FOR DROPPERS OF I-2 VACCINE

Always read the information printed on the label of the vaccine dropper and on the leaflet that accompanies it. In general, the storage times for I-2 vaccine are as follows:

#### Unopened vaccine:

Very hot weather (30 – 37 °C)	→ 2 days
Warm weather (22 to 29 °C)	→ 2 weeks
In the refrigerator (2 – 8 °C)	→ 2 months or until the expiry date (whichever is sooner)

DO NOT FREEZE

#### After opening

Hot weather (over 30°C)	→ 2 days
Warm weather (20 to 30°C)	→ 3 days

However, the main points to stress about storage of the vaccine are that the virus stays healthy and strong at constant low temperatures; the warmer the vaccine gets the weaker it gets and does not recover if you put it back in cool conditions; store it as carefully as possible and use it as quickly as possible.

### 2.4 TRANSPORT

When transporting the vaccine from the Central Veterinary Laboratory to the Agriculture Development Divisions (ADDs) and from the ADDs to the districts and villages a cool box and ice pack should be used if possible. Commercially available freezer bricks or gel packs are ideal for keeping the vaccine cool. However these are expensive and generally will not be returned to the vaccine producer or distributor after the vaccine is used. If this is the case, the cost of the cool box and ice pack can be added to the cost of the vaccine.

If a cool box is not available, use a cardboard box packed with newspaper, which acts as a good insulator. If a freezer brick or gel pack is not available, an alternative is to use disposable plastic mineral water bottles. Three-quarters fill the bottles with water or saturated salt solution and freeze them before transport. The frozen bottle(s) and vaccine can be placed in the cardboard box surrounded on all sides by newspaper. Although this is not as effective as a cool box with ice pack, it is far superior to transporting the vaccine without any ice or in unprotected boxes.



At village level, cool boxes and ice packs or even cardboard boxes and frozen water, are normally difficult to obtain. The next best alternative is to wrap the eye-dropper in a damp cloth and carry it in a covered open-weave basket (to keep it cool and away from sunlight).

## 2.5 METHODS OF ADMINISTRATION

Use the vaccine directly. No reconstitution (i.e. dilution) is required. The vaccine is administered by eye-drop. The dose is just one drop. Put one drop (one dose) in one eye for each bird. The 300 dose dropper contains enough for 300 chickens. If you think that the drop did not properly enter the chicken's eye, you can administer a second drop.

## 2.6 RECOMMENDED VACCINATION SCHEDULE

The vaccine can be used for all ages of chickens. Even newly hatched chickens can be vaccinated. Vaccination should be done every 4 months (i.e. 3 times per year). The recommended months for vaccinating chickens are March, July and November.

### *Note*

- Avoid exposure of the vaccine to very high temperatures and direct sunlight;
- The vaccine will protect against Newcastle disease **only** (Use the local name for ND when appropriate);
- Vaccinate only apparently healthy chickens. **Do not vaccinate sick chickens.** The vaccine is meant for prevention not for treatment;
- Chickens can be safely eaten immediately after vaccination;
- The vaccine will not harm the chickens;
- It takes at least **7 to 14 days** for a chicken to develop adequate protection against Newcastle disease after vaccination;
- Chickens should be revaccinated **every 4 months** as their level of protection will start to fall after this period;
- A dose (one eye-drop) is **the same for chickens of all ages** (from day old to adult) and for males and females; and
- If all of the first drop did not enter the eye, apply a second drop.

## 2.7 PRECAUTIONS

Good hygiene is important. Do not touch the bird's eye with the dropper. Wash your hands after vaccinating each farmer's birds and handling the vaccine.

Although it rarely occurs, use of Newcastle disease vaccines may cause transient mild conjunctivitis in humans if the vaccine enters their eyes. Therefore, care must be taken when using this vaccine.

## 2.8 STATEMENT OF RESPONSIBILITY

The vaccine has been produced and tested in our laboratories in accordance with the standards of the Malawi Pharmacy, Medicines and Poisons Board.

Manufactured by:  
Central Veterinary Laboratory, Vaccine Production Unit  
Ministry of Agriculture and Food Security,  
P.O. Box 527, Lilongwe, Malawi.

### 3. Extension Messages

The following is a list of common questions and answers to important aspects of Newcastle disease vaccination campaigns. For further information, contact the Assistant Veterinary Officer (AVO) or Agriculture Extension and Development Officer (AEDO) of your area.

#### 1. What is the expiry date of the vaccine?

**Answer:** See the expiry date on the vaccine label.

Note: Expiry date is only valid when the vaccine has been held constantly below 8 °C.  
(See questions 2 – 6 below)

#### 2. For how long can a dropper stay in the freezer?

**Answer:** The vaccine **should not** be frozen.

#### 3. For how long can an unopened dropper stay in a fridge?

**Answer:** As long as the temperature remains constant, between 2 – 8 °C (no power cuts), then the vaccine can be stored in a fridge until the expiry date shown on the label.

#### 4. For how long is the I-2 vaccine viable after being removed from the fridge or a cool box?

**Answer:** Unopened vaccine:

Very hot weather (30 - 37 °C) → 2 days

Warm weather (22 to 29 °C) → 2 weeks

In the refrigerator (2 – 8 °C) → 2 months or until the expiry date (whichever is sooner)

DO NOT FREEZE

Hot weather (over 30°C) → 2 days

Warm weather (20 to 30°C) → 3 days

\*Note: These are the recommended limits, but once the vaccine is removed from the fridge, it should always be used as quickly as possible.

#### 5. For how long is the I-2 vaccine useable once it has been opened?

**Answer:** Hot weather (over 30°C) → 2 days

Warm weather (20 to 30°C) → 3 days

#### 6. Can a dropper be moved several times between the fridge and ambient temperature?

**Answer:** Only if the dropper is removed for a few minutes. Once it has warmed up, it is preferable to try and maintain a constant temperature rather than allowing it to heat and cool repeatedly. Once removed from the fridge, the criteria described in 4 and 5 above apply, even if it is returned to the fridge.

#### 7. What are the recommended months for vaccination campaigns?

**Answer:** March - July - November

#### 8. How many campaigns should be carried out each year?

**Answer:** Three (that is one campaign every four months)

**9. What month is it better to start a vaccination campaign?**

**Answer:** July, as this is just before the normal outbreaks of Newcastle disease. However, any of the 3 months mentioned in question 7 are suitable provided that there is no ND outbreak in progress.

**10. At what age can a chick first be vaccinated?**

**Answer:** One day old (as soon as it hatches)

**11. Do all chickens in a flock need to be vaccinated?**

**Answer:** YES. However, unhealthy, malnourished or sickly birds should not be vaccinated, as the vaccine will not develop sufficient immunity in these birds, and the vaccine will not help them get better. These birds should be separated from the rest of the flock if possible.

**12. Will all chickens survive an ND outbreak if they are vaccinated?**

**Answer:** It is not possible to guarantee that all birds will survive (i.e.100% protection). Some birds may already have been incubating the disease, or a small number of birds do not respond to the vaccine, especially if they are sick or malnourished. However, if vaccination campaigns are well done, at least 80% of vaccinated birds should survive a ND outbreak if it occurs during the first four months following vaccination. Birds vaccinated more than four months previously are unlikely to be protected.

**13. How many drops of vaccine should be given to each chicken?**

**Answer:** Just one: that is one drop in one eye, no matter what age the chicken. However, if you think the drop did not enter the bird's eye, you can safely give another drop.

**14. What vaccination targets should we have?**

**Answer:** Vaccination targets can be determined by census to estimate the total number of birds in a village. Aim to vaccinate 75% of birds in a village in the long term. But in the first year, a campaign should be considered a success if more than 25% of households vaccinate their birds. All birds within a household should be vaccinated.

**15. How to calculate actual percentage of vaccinations in relation to targets?**

**Answer:** 
$$\frac{\text{Number of birds vaccinated per campaign} \times 100}{\text{Targeted number of birds}}$$

Example: If you are aiming to vaccinate 3,000 birds in a village and the actual number of chickens vaccinated is 1,000 then the percentage of birds vaccinated in relation to the target is:

$$1,000 \times 100 / 3,000 = 33\%$$

**16. How to organize farmers prior to vaccination?**

**Answer:**

- Discussions with the community and leaders about 4 weeks beforehand to select a suitable day and vaccination times.
- Post leaflets in prominent places about 1 week beforehand informing of the vaccination day
- Remind chicken keepers about the vaccination one day before, using sub-village leaders together with motivators or vaccinators.

**17. How to explain to farmers if chickens die after vaccination that it was not the vaccine that killed them**

- Answer:**
- The I-2 vaccine is harmless
  - The vaccine protects the chickens against ND only
  - During vaccination, the disease may have been in the incubation period although the birds did not show signs at the time. If this was the case, the vaccine could not prevent the disease from appearing.
- Note: these messages should be explained before the campaign and then reinforced afterwards if birds die.*

**18. How to recognize the clinical signs of other diseases that kill chickens?**

- Answer:**
- The AEDO and/or AVO should do proper data collection to determine the disease that killed the chickens.
  - Look at mortality rate (high mortality is probably Newcastle disease) – **note** that there is a highly pathogenic version of avian influenza that will also cause high chicken mortality. Avian influenza is also dangerous to humans.
  - What age groups were affected?
  - What type of birds were affected?
  - Were the birds recently introduced to the flock?
  - Are there signs of disease not consistent with ND? (Such as scabs in the mouth or lumps around the eyes?)
  - Necropsy to identify indicators of the presence or absence of ND
  - Examples of other disease that cause death in village chickens:
    - ❖ Coccidiosis
    - ❖ Bacillary White Diarrhoea
    - ❖ Fowl pox
    - ❖ Infectious coryza

**19. How do we convince the farmers that there are other killer diseases besides ND?**

- Answer:**
- By teaching them effectively about Newcastle disease & its clinical signs.
  - By discussion with farmers and asking them to list and describe the illnesses they have seen in their chickens. If the local word for ND simply means ‘epidemic of chickens’, explain that the English term ND reflects a specific disease. Ask farmers to discuss the different types of diseases in humans and cattle, etc.

**20. What is the price of the vaccine?**

- Answer:**
- MK20.00 per dose. This is about equivalent to half price of a single egg. It covers the cost of producing and distributing the vaccine and allows the vaccinator to earn some money in return for the work he/she does.
  - The vaccinators will pay MK1,100 for a dropper of I-2 vaccine containing 300 doses. To recover this cost, the vaccinator would need to vaccinate 55 chickens @ MK20.00 per vaccination.

**21. Where can the vaccine be obtained?**

- Answer:**
- At community level - from the Assistant Veterinary Officer
  - At district level - from the District Animal Health and Livestock Development Officer
  - At the ADD level - from CVL

**22. Who are the people authorized to handle the vaccine?**

- Answer:**
- Anyone can handle the vaccine. As the vaccine is given by eye-drop, the presence of a veterinarian is not required by law in Malawi. (Pharmaceuticals administered by injection require the presence of a veterinarian.) Farmers can even buy and administer the vaccine themselves.
  - However, it would be best if the vaccine is handled by people who have been trained in I-2 vaccine use and storage, so that we can improve the chances that the vaccine will be used effectively.

**23. How to transport the vaccine during the process of vaccination?**

**Answer:** Vaccine is best transported in cool boxes with ice. If a cool box is not available it should be wrapped in a damp cloth and put in a covered open weave basket or similar container (not plastic or metal) that allows air to pass through and protects the vaccine from direct sunlight.

**24. How do we convince the farmer to keep chickens in a chicken house separate from the family home despite the problems associated with the practice?**

- Answer:**
- Educate the farmers on the advantages and disadvantages of keeping chickens in a separate house. (Include the disadvantages so that they can be discussed and overcome).
  - If security is a real problem, then look at alternatives, such as modifying the house to include a separate area for chickens.

**25. What are the advantages and disadvantages of keeping chickens in the family's house or building separate chicken houses?**

<b>Advantages of separate chicken houses</b>	<b>Disadvantages</b>
<ol style="list-style-type: none"><li>1. Easy management of chickens</li><li>2. Controls spread of diseases</li><li>3. Reduces conflicts with neighbours</li><li>4. Manure is easily collected</li></ol>	<ol style="list-style-type: none"><li>1. Chickens are exposed to thieves and other predators</li></ol>
<b>Advantages of keeping in house</b>	<b>Disadvantages</b>
<ol style="list-style-type: none"><li>1. Security is assured</li><li>2. Assist with the control of some insects inside the house.</li></ol>	<ol style="list-style-type: none"><li>1. Transmission of diseases is easy, including the transmission of zoonotic diseases to family members</li><li>2. Contamination of house environment</li><li>3. Humans are exposed to external parasites like lice, mites, fleas etc.</li></ol>

#### 4. The Price of the I-2 Vaccine

The price for vaccinating chickens using the I-2 vaccine has been set at MK20.00 **per bird**. It covers the cost of producing and distributing the vaccine and allows the vaccinator to earn some money in return for the work he/she does.

The vaccinators will pay MK1100.00 for a dropper of I-2 vaccine containing 300 doses. Vaccinators should be made aware of this price well in advance of receiving the vaccine, so that they can save money to buy the dropper.

To recover this cost of a dropper containing 300 doses, the vaccinator would need to vaccinate 55 chickens at MK20.00 per vaccination. The table below gives an example of the money that a vaccinator could earn according to the number of birds vaccinated.

Number of birds vaccinated	Total money received at MK 20 per bird	Minus the cost of the vaccine dropper (MK)	Profit or Loss for the vaccinator (MK)
50	1000	-1,100	Loss of 100
60	1,200	-1,100	Profit of 100
100	2,000	-1,100	Profit of 900
110	2,200	-1,100	Profit of 1,100
120	2,400	-1,100	Profit of 1,300
130	2,600	-1,100	Profit of 1,500
140	2,800	-1,100	Profit of 1,700
150	3,000	-1,100	Profit of 1,900
200	4,000	-1,100	Profit of 2,900
300	6,000	-1,100	Profit of 4,900

The more birds that are vaccinated per dropper of vaccine, the greater the return on the MK1,100 investment. To achieve this, vaccinators must organise their campaigns in an efficient manner and strive to perform their work in the best way possible so that farmers will want to keep vaccinating their chickens.

Vaccinators must understand the importance of reliability of the service being provided. If farmers are expected to pay for the vaccine they must be convinced that it is a worthwhile activity. It is the farmers who decide whether or not their chickens are to be vaccinated against ND. The job of the community vaccinator (and extension staff) is to provide appropriate information to farmers to help them to decide to vaccinate their chickens and then to provide a good vaccination service.

## **5. Guide to Organizing a Vaccination Campaign against ND**

(For use by Community Vaccinators when organising vaccination campaigns in their village)

### **5.1 ONE TO TWO MONTHS BEFORE THE CAMPAIGN**

#### **Community Awareness Raising**

Vaccination campaigns start with informing the community about the campaign and involving them in the planning and implementation of the campaign. Village leaders should be informed and a village meeting should be held to discuss the campaign. The AEDO and/or AVO should be present as well as the community vaccinator. A presentation on ND and vaccinating chickens can be given and any doubts or questions can be answered. The community can then discuss how they want to implement the campaign.

#### **How Many Doses of Vaccine? (Chicken Registration)**

The next step is for the community vaccinator to visit individual households. Vaccinators can discuss any further queries with each family and ask for an estimate of the number of chickens that the farmer will be vaccinating. It is also important to clarify how much it costs to vaccinate each chicken (i.e. MK20.00). The vaccinator can then inform the AEDO/AVO how many doses of vaccine will be needed so that the vaccine can be ordered in time to arrive in the village.

#### **When to Vaccinate**

- Decide in consultation with farmers. Consider weather conditions, the farmers' weekly and annual work plan and the pattern of Newcastle disease outbreaks;
- Begin campaigns at least one month before the season when Newcastle disease outbreaks are more common;
- Campaigns are frequently best held during the weekends or school holidays so that children are home to help catch the chickens; and
- Postpone the vaccination campaign if it is suspected that an outbreak of Newcastle disease is in progress.

#### **Where to Vaccinate**

- Decide, in consultation with farmers, the location of vaccination: house-to-house visits, or central vaccination points, for example at village meeting centres.

### **5.2 ONE WEEK TO ONE DAY BEFORE THE CAMPAIGN**

#### **Materials**

Make sure that you have all the necessary materials:

- Vaccine, of appropriate quality and quantity;
- Registration book to record farmers' names, number of birds vaccinated and payment made;
- A suitable container for transporting the vaccine;

- Organise some small coins and notes (e.g. MK10.00 and MK20.00) to give as change to farmers paying for vaccination; and
- Write a price list in the registration book to assist with the collection of the vaccination fees. The list should show the price of vaccinating one bird through to 30, depending on the average size of a flock.

### **Campaign Promotion**

Promote the days and times of vaccination using a range of methods such as:

- Vaccination leaflets posted in strategic places;
- Short presentations at community gatherings such as schools and churches;
- Using a loudspeaker;
- Reminding village leaders and asking them to inform the community; and
- Radio stations.

### **5.3 ON THE DAY OF VACCINATION**

If you do not have a cool box and ice, wrap the vaccine in a damp cloth and put it in a covered open weave basket or similar container. At each household, remember to discuss the following:

- Ask the farmer if all of his/her birds are in good health;
- Ask the farmer to help hold the birds for vaccination and show him/her how to hold the bird with the head to one side so that you can easily administer the eye-drop;
- Check that the farmer understands that the vaccine will protect against ND only;
- Do not promise that all vaccinated birds will survive;
- Mention that birds in poor condition or infested by parasites may not respond well to the vaccine;
- Remind the farmer that birds should be revaccinated every 4 months;
- Let the farmer know that you will pass by again after the vaccination to check that everything is going well and to plan for the next campaign;
- Birds may be eaten immediately after vaccination if necessary;
- Ask the farmer if he/she has any questions;
- Record the farmer's name, the number of birds owned and number vaccinated;
- Examine each bird to make sure that it is healthy before you vaccinate it; and
- Vaccinate the birds away from direct sunlight, e.g. in the shade of a tree.

### **5.4 AFTER THE VACCINATION CAMPAIGN**

#### **Monitoring and Evaluating your Work**

- You should arrange to meet the AEDO and/or AVO about one month afterwards to discuss the campaign and give him/her the vaccination data.



- When preparing for the next campaign, discuss the previous campaign with village leaders and at community meetings to try and resolve any problems and improve future campaigns.
- To monitor vaccination, try to visit farmers:
  - One week to one month after vaccination to confirm that vaccinated birds are healthy; and
  - Two to three months after vaccination to monitor chicken numbers, farmer attitudes to vaccination and to prepare for the next campaign.
- If your work is progressing well, you should observe:
  - An increase in the number of chickens per family/household;
  - Farmers continue to participate in subsequent vaccination campaigns;
  - New farmers present their chickens for vaccination at each campaign; and
  - Payment received from farmers for the vaccination of their chickens is sufficient to buy vaccine for the following campaign and to cover any transport or labour costs involved.

## 6. Community Involvement in Planning, Implementing and Monitoring and Evaluation

(For use by Extension workers when starting ND vaccination programs in a village)

It is crucial to involve the community in all aspects of the vaccination program. This will result in:

- The program being more sustainable, as it will be controlled by the very people who benefit from vaccination;
- Better communication and understanding between all people involved in the vaccination process; and
- Improved vaccination campaigns, as the community will help to monitor, evaluate and improve the work.

A vaccination awareness raising program should start at least two months before the vaccination campaign. It should include the following phases:

### **PHASE 1- AWARENESS RAISING AND PARTICIPATORY RURAL APPRAISAL (PRA) EXERCISES**

1. One or several meetings should be held with village government leaders (including members of the livestock committee and health committee) to explain the importance of chicken vaccination and what the AEDO/AVO is planning to do.
2. A specific meeting may need to be held only with the livestock committee to explain the process in detail and to make sure that they are involved in taking responsibility for some of the activities.
3. Similar meetings could also be held with other community leaders (traditional, religious, school teachers, nurses, cultural groups etc.) to inform them, gain their support and define with them how they can contribute to the success of the campaign.
4. A meeting with all residents should then be held to explain the vaccination program. All of these meetings should include the following points:
  - Introduce yourselves;
  - The major aim of your work is to assist villagers in fighting poverty through the improvement of poultry production;
  - You should confirm that the community believes that ND is a major constraint to the production of village chickens;
  - You will be organising a vaccination campaign to protect village chickens from ND;
  - You are not here to distribute free goods to people, but to help them organise themselves to protect their birds against ND;
  - Use the ND flip chart to explain about ND disease and vaccinating birds;
  - You will be doing a number of group exercises with the community to help them understand chicken production and organise vaccination campaigns;
  - You will also be selecting and training a number of community vaccinators; and

- You will help the community to plan and implement a vaccination campaign.
5. The final part of this phase would then involve conducting a number of PRA exercises with the community. If the AEDO/AVO has not received training in the use of these techniques they should contact their AEDC or DAHLDO for assistance.

## **PHASE 2 – STARTING THE ORGANISATION OF THE FIRST CAMPAIGN WITH THE COMMUNITY**

This is done immediately following Phase 1.

1. A meeting with all the residents to give feedback on the information collected from the participatory exercises and to start planning the vaccination campaign with them.
  - The results of the calendar and ranking exercises are presented to the community.
  - The ND flip chart is used again to explain the characteristics of ND and the use of the vaccine.
  - The price of the vaccine and how this money will be used should be explained.
  - Explain the role of the vaccinator and the benefits of being a vaccinator. How much he/she is going to earn for each bird vaccinated.
  - In smaller groups divided into separate groups of men and women, residents should be asked how they can determine:
    - How many doses of the vaccine will be needed?
    - When to vaccinate birds (months or seasons of the year).
    - How to organise the vaccination (at what time of the day; how are they going to catch the chickens; can they keep chickens in a basket or shut up on this day; will vaccination be house to house or is it possible to have central points to which farmers bring their birds, etc)?
    - Who will vaccinate the chickens? Do they want to vaccinate their own chickens personally? Do they accept that somebody else will vaccinate their chickens? Who will select the vaccinators? How many vaccinators are needed? Ratio of men and women vaccinators? What are the criteria for selection of vaccinators?
    - Who in the community will help to organise the campaign? Is it the livestock committee alone, or who else can help?
    - How can the results of the campaign be evaluated?
  - The different groups should present their work and a summary of the discussion is made.
  - According to the decisions taken, other meetings and interventions can then be planned.
2. Perhaps a separate meeting needs to be held to select the vaccinators.
3. Meeting of the livestock committee to start planning the campaign with the vaccinators and the AEDO/AVO based on the discussions held with the community.

Points to be discussed are:

- Is there a map of the village with all the households? How will it be used?

- How to carry out the census of the chickens to be vaccinated in the first campaign?
  - How the residents will be informed of the date of the campaign? (general meeting, door to door, posters, who will do what, when and where?)
4. Second meeting of the livestock committee:  
Once the registration of chickens to be vaccinated has been done, calculate the number of doses needed and send the information to the district. Plan how the different vaccinators are going to be given the vaccine according to the number of vaccine containers to be bought. Inform the vaccinators of the plan.
  5. Meet with the community to discuss and approve the final plan.

### **PHASE 3 – IMPLEMENTATION OF THE FIRST CAMPAIGN**

1. Meeting of the livestock committee: Inform the leaders, farmers and vaccinators as soon as the vaccine arrives.
2. Implement the campaign according to the plan drawn up with the community.

### **PHASE 4 – EVALUATION OF THE FIRST CAMPAIGN AND PLANNING OF THE SECOND AND FOLLOWING CAMPAIGNS**

1. Meet with each community vaccinator to discuss the campaign and record monitoring information (see vaccinators manual and trainers manual)
2. Meet with vaccinators, livestock committee and AEDO/AVO to evaluate the impact of the first campaign.
3. Hold focus group discussions with a group of men and a group of women to evaluate the impact of the vaccine one month after the first campaign and just before the second campaign (This can be done in different sub-villages of the same village.)
4. Meet with all residents to report the results of the first campaign and to raise awareness of the second campaign. Discuss improvements to be done in terms of preparation and implementation. Define other activities of awareness raising to be done with village groups, school, etc.

### **PHASE 5 – MONITORING OF FOLLOWING CAMPAIGNS (ONE YEAR AFTER THE FIRST CAMPAIGN)**

1. Each year go through the following PRA activities to see if changes have occurred:
  - Poultry calendar;
  - Poultry Enterprise Ranking;
  - ND Problem Ranking; and
  - Visioning.

## **ROLES OF EACH GROUP:**

### **The livestock/ND Committee**

- Creates general community awareness;
- Supervises the work of vaccinators;
- Helps monitor and evaluate the ND campaigns;
- Liaises between the community and AEDO/AVO; and
- Keeps village data on the ND campaigns.

### **The Community**

- Decides the overall process;
- Selects vaccinators; and
- Helps with monitoring and evaluating the ND campaigns.

### **AEDO/AVO**

- Guides the overall community process;
- Ensures that the vaccine is available on time;
- Collects payment for the vaccine dropper from the vaccinator
- Keeping records;
- Reporting (routine);
- Reports disease outbreaks (if any);
- Supervises and assists vaccinators and village committees;
- Assists with training of vaccinators and other community members; and
- Helps to organise vaccination campaigns; awareness raising; monitoring and evaluation.

### **Vaccinator**

- Deals directly with individual farmers and groups of farmers;
- Does chicken registration to determine how many chickens are to be vaccinated;
- Receives and pays for the vaccine from the AEDO/AVO (MK1,100.00 per dropper);
- Plans and organises village chicken vaccination with the committee;
- Mobilises participating farmers to prepare for vaccination;
- Vaccinates the chickens;
- Collects payment from the farmers;
- Keeping records; and
- Monitoring and evaluating the campaigns with the AEDO/AVO.

### **The Role of Village Leaders**

- Supervise of the village ND program and ensure that campaigns run smoothly;
- Help the AEDO/AVO and vaccinators organise campaigns;
- Help mobilise the community; and
- Assist with monitoring and evaluation.



Boma la Malawi  
Nthambi yoyang'anira ulimi wa ziweto

## TETEZANI NKHUKU ZANU KU MATENDA A CHITOPA

**Temerani nkhuku zanu kamodzi pamiyezi inayi iriyonse pogwiritsa  
ntchito katemera wachitopa wa I-2**

# 2013

Ntchito yomwe yakwaniritsidwa

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Boma la Malawi  
Nthambi yoyang'anira ulimi wa ziweto

## KUTETEZA NKUKU KU MATENDA A CHITOPA



Malo: \_\_\_\_\_

Tsiku: \_\_\_\_\_

Nthawi:: \_\_\_\_\_





## 7. A Guide to the Field Diagnosis of ND

Diagnosing the cause of mortalities in village chickens is very important as this will help to identify constraints to production. The accurate diagnosis of ND in village chickens is often difficult but when it is achieved it will assist in determining the prevalence of ND in the area concerned.

An introduction to the clinical signs and post mortem lesions associated with ND can be found in Section 1.2.1.

### 1. Field diagnosis of Newcastle disease

To assist with the diagnostic process, it is best to separate cases according to the level of mortality observed and the ND vaccination history:

Chickens vaccinated against ND	Chickens not vaccinated against ND
<b>High mortality</b> – when many birds die (50 to 100% of birds of all ages) with clinical signs suggestive of ND, it is possible that: (1) the birds were not properly vaccinated or were vaccinated more than 4 months previously; or (2) they were infected with Bird Flu.	<b>High mortality</b> – when many birds die (50 to 100% of birds of all ages) with clinical signs suggestive of ND, it is most likely that the outbreak is due to ND.
<b>Low mortality</b> – this situation is more difficult. In villages where many chickens were vaccinated against ND, the arrival of a virulent field strain of ND will cause mortality in those birds that have not been recently vaccinated. In this situation, it is necessary to distinguish ND from other killer diseases such as Bird Flu, coccidiosis and Fowl Pox.	<b>Low mortality</b> – this situation is more difficult. In villages where some chickens have survived an outbreak of virulent ND, the arrival of another ND field strain will only cause mortality in those birds without immunity. In this situation, it is necessary to distinguish ND from other killer diseases such as Bird Flu, coccidiosis and Fowl Pox.

**Note:** None of the clinical signs of ND are unique, the same clinical signs can be observed with other diseases of poultry. Therefore, it is important that diagnostic specimens be collected and dispatched to the Central Veterinary Laboratory.

### 2. Differential Diagnosis of chicken diseases in the field

ND can produce a number of clinical signs in chickens, depending on the organs it is affecting. This can make it difficult to distinguish from other diseases. Below is a list of signs that may help to narrow down the type of disease that the birds may have (signs listed in the first four categories can all indicate ND, but may also indicate other diseases):

- **General clinical signs** – these signs are common for a large number of diseases and can only serve to indicate that the bird may be sick:
  - Inactive; low appetite; sleepy; low egg production; dirty, ruffled feathers; drooping wings, pale comb.
- **Respiratory Diseases** – rattling breath; swollen head; swollen eyes; ocular or nasal discharge.

- **Intestinal Diseases** – diarrhoea; dirty back feathers.
- **Diseases of the Nervous System** – paralysis; dragging legs.
- **Fowl Pox** – Lesions around the eyes or in the mouth.
- **Parasites** – restlessness.

**For more information, please contact:**

Newcastle Disease Vaccine Production Laboratory  
 Central Veterinary Laboratory  
 P. O. Box 527  
 Lilongwe

## 8. Comparison of Various ND Vaccines

Vaccine	Thermostability	Form	Source	Administration	Period of Protection
I-2	Thermotolerant	Live	Locally Produced	Eye, water <sup>1</sup>	3-4 months
NDV4	Thermotolerant	Live	Imported	Eye, water	3-4 months
La Sota	Thermolabile	Live	Imported	Eye, water	3-4 months
Hitchner B1	Thermolabile	Live	Imported	Eye, water	3-4 months
ITA-NEW	Thermotolerant	Inactivated	Imported	Injection	6-12 months

- **Thermostability.** Thermolabile vaccines are very temperature sensitive and should be used within a short period of time after being removed from the fridge. They cannot tolerate temperatures outside of the fridge. Thermotolerant vaccines are more tolerant to higher temperatures and can stay outside of the fridge for longer periods. However, thermotolerant vaccines should still be handled with care and kept as cool as possible.
- **Form.** Live vaccines result in a wider range of immune responses in the bird compared to inactivated vaccines, which is a good attribute. However, live vaccines also result in a shorter period of immunity.
- **Source.** Locally produced vaccines are generally cheaper, as there are no import duties and no profit margins to cover for the supplying company.

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<sup>1</sup> We recommend that you give the I-2 vaccine by eye drop as the bird makes a stronger defensive response when the vaccine enters via the eye. You could give the vaccine via drinking water but it generates a smaller defensive response. You also have to give the vaccine more often if you use drinking water and this makes it more expensive. There is also the problem that the more aggressive birds may drink more water resulting in the weaker birds receiving an inadequate dose of vaccine.

- **Administration.** Injectable vaccines require more experienced people to administer the vaccine compared to vaccines applied via water or eye-drop. They are therefore more expensive to administer.
- **Period of protection.** In general, the longer the time between vaccinations the better as each vaccination requires a lot of organization and costs. However, be aware that for village chickens, new birds are constantly hatching so that the vaccine needs to be administered at least three times per year to cover newly hatched birds.

## **9. Dealing with Surplus Chickens and Eggs once your ND Control Campaigns are an Ongoing Success**

Once a ND control program is functioning well, the problem may well be what to do with the surplus chickens and eggs! In many areas, large markets may be some distance from the areas where chickens are produced and/or cultural taboos may prevent certain members of the family from eating eggs or chickens.

For many farmers, village chickens are a living bank account. The sale of chickens or eggs can resolve many problems that rural families face, such as the payment of school fees, purchase of clothes or medicines or essential food items like oil or salt. The sale (or barter) of chickens can also enable farmers to acquire other domestic animals such as pigs, sheep, goats and cattle.

### **9.1 TIPS FOR MARKETING SURPLUS CHICKENS AND EGGS**

- Let chicken traders in central markets know about areas where farmers are vaccinating against ND. Tell them that they will always find chickens to buy if they make the effort to visit these areas. ND also causes problems for chicken traders because it can be difficult for them to buy birds at a reasonable price after an outbreak. Traders can also lose money if birds purchased from many different houses and areas become infected with ND and die before reaching the market.
- Encourage the local communities to select their own chicken traders. Just as the community has chosen community vaccinators, they can also choose people to take their surplus birds and eggs to central markets for sale. This way the farmers are more likely to get a fair price for their birds and the profits involved in chicken trading are more likely to stay within the community. Training may be required to ensure that sales are fairly distributed and that trips to central markets are made when buyers are more likely to have money (i.e. the first week after government salaries are paid) and when major festivals are about to take place (e.g. religious or secular holidays).
- Organise market days, maybe on a monthly basis, and invite chicken traders, restaurant owners, etc. to attend.

### **9.2 ENCOURAGING FAMILIES TO EAT MORE CHICKENS AND EGGS**

In many areas, farmers are reluctant to eat surplus chickens or eggs and in some regions, the consumption of eggs is prohibited for children and women by tradition. The conservation of eggs and the hatching of chickens are important in situations of high chicken mortality, where replacement birds are essential. If sustainable ND control programs can be implemented and chicken numbers increase, then the consumption of eggs becomes an option and a very good use of resources. The egg provides a range of

nutrients apart from protein and could make a substantial contribution to the nutrition of children, and pregnant and nursing women.

In many parts of the developing world, child malnutrition remains a serious problem. Malnutrition in children under the age of five years can affect their whole life. But if young children eat well, they will grow well, be healthier, do well at school and be strong physically.

Collaborate with colleagues working with human nutrition within the Ministries of Health and Education to raise the awareness of families about good eating practices and the contribution that chickens and eggs can make to good health.

## **10. A Guide to the Collection and Submission of Samples for the Laboratory Diagnosis of ND**

The diagnosis of ND is important for several reasons. ND is a disease of international importance and countries are required to inform the *World Organisation for Animal Health* (OIE) when an outbreak occurs. Confirmed outbreaks help national authorities to better understand the epidemiology of ND in their countries and to develop appropriate control strategies. Once ND control activities are underway, it is useful if the cause(s) of mortality among vaccinated birds can be diagnosed. Vaccination against ND cannot provide protection in 100% of birds and this message must be clearly understood by all involved. Also, it is important to diagnose other diseases that will become more apparent (and consequently, more important) once chicken numbers increase as a result of the control of ND.

### **10.1 WHAT IS NEWCASTLE DISEASE**

Newcastle disease is one of the most important chicken diseases and can cause 50 to 100% mortality in susceptible flocks.

This disease is caused by a virus that can be destroyed (inactivated) quickly at temperatures above 8 °C (i.e. the virus is “thermolabile”). Consequently, it is very important that samples collected from chickens where ND is suspected be kept cool until they reach the diagnostic laboratory.

### **10.2 TISSUE SAMPLES**

The best samples for diagnosis are tissues collected at the diagnostic laboratory from sick birds. However, ND can be easily spread by the transport of live birds. If it is difficult to transport live birds to a diagnostic laboratory with minimal risks of spreading disease to other birds, it is advisable to submit the following post mortem samples for diagnosis.

**Note:** If there is a possibility that the bird to be examined has been infected with Bird Flu, it is essential that the technician use personal protective equipment (including gloves, fitted mask, safety goggles and coveralls).

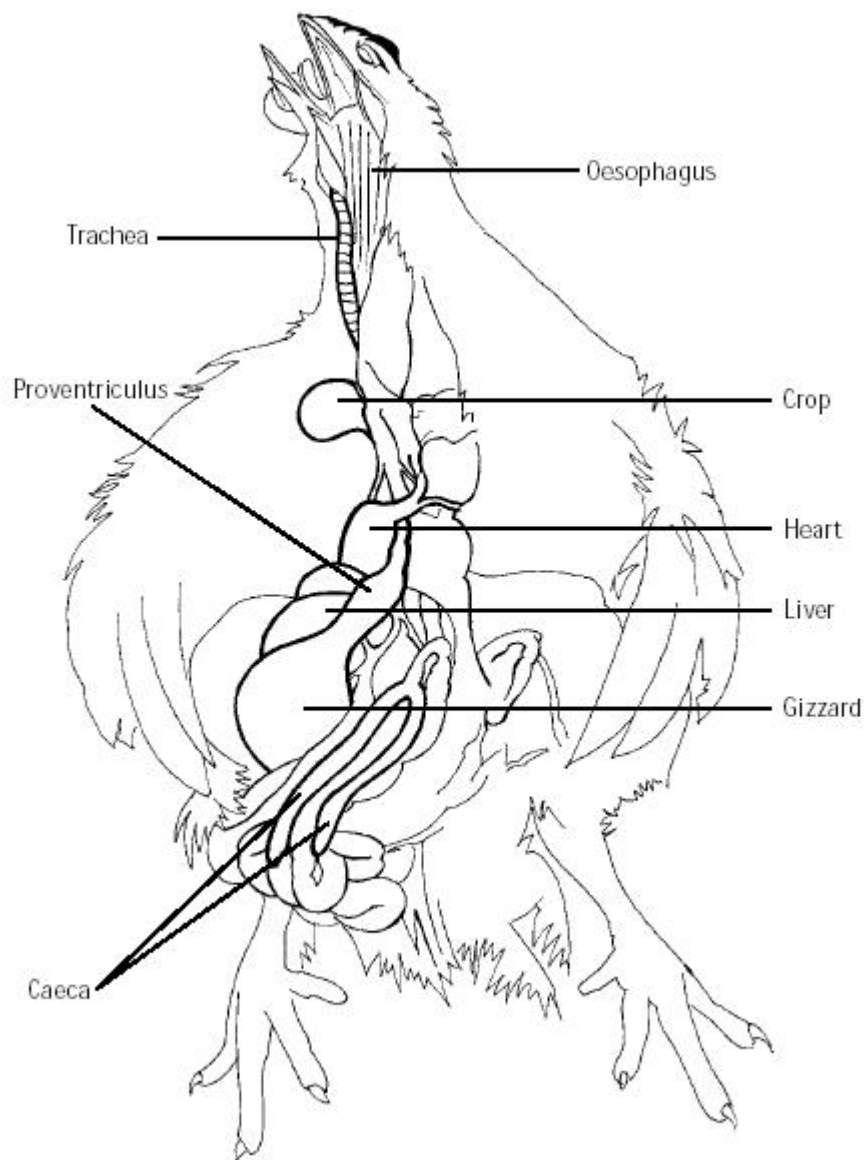
Since virulent ND virus strains are normally thermolabile, it is important to send samples properly packaged with ice packs. Wherever possible, please try to observe the following conditions:

- **Fresh samples.** Samples of spleen, lung and the entire head should be wrapped in plastic and placed into a cool box with ice or icepacks.

- Where it is not possible to keep the samples cold or when it is not certain that samples will arrive at the laboratory within 24 hours. Samples of spleen, lung, entire head (or brain) and long bones should be conserved in 50% glycerine (glycerol) in saline and kept as cold as possible during dispatch.

**MATERIALS:**

<ul style="list-style-type: none"> <li>• A sharp knife;</li> <li>• A pair of scissors;</li> <li>• A pair of shears (or garden secateurs);</li> <li>• A pair of forceps;</li> <li>• Empty bottles (only for cold storage of organs);</li> </ul>	<ul style="list-style-type: none"> <li>• Bottles containing 50% glycerine in saline;</li> <li>• Plastic bags;</li> <li>• A coolbox with ice or ice-packs (if possible); and</li> <li>• Pen and laboratory submission form for recording information.</li> </ul>
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**Figure 4:** The major organs of the chicken. The trachea, proventriculus and caeca should be examined for lesions.

The cool box containing the samples should be clearly identified and accompanied by the following information:

- The name and address of the person sending the samples;
- The date and location where the samples were collected;
- Case details – age, sex, breed, vaccination and treatment history, clinical signs, mortality and description of the outbreak; and
- Differential diagnosis.

CVL has a submission form on which this information should be recorded. The form should be sent to the laboratory with the samples (see next page for the form). More details concerning the post mortem of chickens may be found in the ACIAR manual entitled “Controlling Newcastle disease in village chickens: a field manual.”

**CENTRAL VETERINARY LABORATORY MALAWI  
LABORATORY REQUEST FORM  
CVL FORM A**

*Telephone No* .....

Sender's reference No.....Date.....

1. Animal.....Breed.....Sex.....Age.....Tag No.....

2. Name of owner.....

3. Address of owner.....

4. Name of office of sender.....

5. **HISTORY** (a) No of animals in herd.....

(b) No of sick animal in herd.....

(c) Duration of illness.....

(d) No of deaths in herd.....

(e) Recent treatment.....

6. Ante-mortem symptoms / signs (History of dead animals)  
.....  
.....  
.....

7. Post-mortem symptoms/ signs (History of dead animals)  
.....  
.....  
.....

8. Specimen sent / submitted.....  
Disease suspected.....  
.....

**NB: Please use back page if there is more to be written**

# 11. Introduction to the Control of Other Diseases of Village Chickens

## 11.1 CONTROL OF EXTERNAL PARASITES

- Management, good housing and hygiene.
- Remove bark from timber used to construct shelters to reduce hiding places for ticks and mites. If possible, timber should be painted with a mixture of paraffin (kerosene) and creosote in equal amounts or with nicotine sulphate (40%).
- Clean shelter and nests regularly, at least every week.
- Place chicken manure on gardens and mix into soil. This will prevent flies from developing in the manure.
- Keep brooding hens free from fleas and lice to prevent infestation of young chicks. When heavy infestations occur, it is best to burn the chicken house or nest and build a new one on a different site. In some areas, farmers will be aware of the leaves of some local plants that if placed around the nest will discourage external parasite infestations.
- Allow chickens to bathe in sand or ash to clean their feathers.
- Apply insecticide (trichlorphon or malathion) to individual birds and housing.
- Scaly leg of chickens can be treated by dipping the leg in paraffin (kerosene) and gently brushing the scales from the leg. The paraffin must not be allowed to touch the skin or feathers.
- Other poultry, dogs, cats and rats should be examined for fleas since they may serve to maintain flea invasions.
- Sunlight, hot dry weather, excessive moisture and freezing hinder development of fleas.

## 11.2 CONTROL OF INTERNAL PARASITES INCLUDING COCCIDIOSIS

- Treatment of individual birds with tetramisole or levamisole is possible but expensive.
- It is best to prevent infection by frequent removal of manure from the chicken house, provision of feed and water in clean containers and allowing birds to sleep off the ground by providing roosts or perches.
- Cages and houses should be kept clean and droppings (faeces) removed every week.
- Droppings should be broken up to ensure that worm eggs will be killed by drying as quickly as possible.
- Feed and water containers should be cleaned every day if possible.
- Do not allow wet, muddy areas to develop anywhere, especially around water containers.
- Do not keep birds on the same area of ground year after year as contamination of the soil will increase.
- Biosecurity is not effective because coccidia oocysts are very resistant.
- Inclusion of coccidiostats in food or water is possible for commercial poultry production.



### 11.3 CONTROL OF FOWL POX

- Management – do not introduce new birds with lesions.
- Virus survives in dried scabs for months or years. Burn infected chicken houses and dispose of all infected birds. Burn or bury all parts of the birds that are unused. After all infected birds have been removed and no new cases occur, build another chicken house on a new site.
- Vaccines are available.

### 11.4 CONTROL OF FOWL CHOLERA

- Treatment cannot be guaranteed to be successful.
- Vaccines are available but results are not always satisfactory. Good results have been obtained in South East Asia when local isolates are used to prepare a vaccine.
- Good flock management – do not introduce sick or new birds.
- Control of rodents (construct elevated chicken houses with inverted metal or plastic cones on the legs to prevent the entry of predators).
- Bacteria are destroyed by disinfectants, sunlight and heat.

NOTE: More details on the control of these and other diseases may be found on the internet at:

The International Rural Poultry Centre Website

<http://www.kyeemafoundation/ruralpoultry>

Australian Centre for International Agricultural Research Website

<http://aciar.gov.au/publication/MN139>

International Network for Family Poultry Development Website

<http://www.fao.org/ag/aga/agap/lpa/fampo1/fampo.htm>

Danish Network for Smallholder Poultry Development Website

<http://www.poultry.kvl.dk>

## **12. Guide to Filling in the Monitoring Sheets for ND Control Campaigns**

### **12.1 INTRODUCTION**

The process of systematically collecting information that will allow planning and evaluation of vaccination campaigns is an important aspect of the control of Newcastle disease. That is why monitoring and evaluation has been given a high priority in the training workshops for extensionists and community vaccinators. If useful and timely information is collected about each campaign this information can be used to demonstrate the results and effectiveness of the campaigns and to help all people improve the way future campaigns are organised.

The Southern Africa Newcastle Disease Control Project (SANDCP) produced 6 types of monitoring forms to collect and summarise data relating to ND vaccination campaigns. These are titled Registration Form 0, 1, 2, 3, 4 and 5. A copy of each of these forms is included in this booklet along with an explanation of who should fill them in and how they should be completed.

### **12.2 WHAT IS THE PURPOSE OF THESE FORMS?**

The monitoring forms serve a number of important purposes, which are:

- To collect reliable and uniform information about ND vaccination campaigns;
- To help community vaccinators monitor and improve their work;
- To supply information to supervisors (extension agents) so that they can identify problems and help community vaccinators to improve how they work;
- To supply information to village communities, as well as EPA, district, ADD and national supervisors, about the degree of success of previous campaigns and to plan for future campaigns; and
- To see if the campaigns are reducing chicken mortality from ND as well as the number of outbreaks of ND.

### **12.3 OTHER INFORMATION THAT SHOULD ALSO BE COLLECTED**

Besides the information in the monitoring forms, extension agents, with the help of community vaccinators should also prepare short, written reports about each vaccination campaign. Information that could be included in these reports is:

- Difficulties relating to the organisation of the campaign;
- Difficulties relating to the supply and distribution of the vaccine;
- Difficulties in receiving payment for the vaccine (either from vaccinators or chicken owners);
- How long it is taking vaccinators to use a dropper of vaccine;
- What chicken owners think about the vaccination campaigns;
- What vaccinators think about the vaccination campaigns; and
- Any other difficulties or problems relating to ND vaccination campaigns.

## Registration Form 0

Example of the table that should be copied into the vaccinator's field book – to be filled in by the community vaccinator

(Put the table across 2 pages of the field book, increasing the size of the first and last column shown here)

Village \_\_\_\_\_ Sub-Village \_\_\_\_\_ (start a new form for each new sub-village)

Name of head of household	Sex (M, F)	First Campaign				Second Campaign				Third Campaign				Observations
		Vaccine Batch number .....				Vaccine Batch number .....				Vaccine Batch number .....				
		Number of chickens registered	Number of chickens vaccinated	Number of chickens owned	Payment made	Number of chickens registered	Number of chickens vaccinated	Number of chickens owned	Payment made	Number of chickens registered	Number of chickens vaccinated	Number of chickens owned	Payment made	
Month:	Month:			Month:	Month:			Month:	Month:					

Vaccinator \_\_\_\_\_ Date \_\_\_\_\_ . Vaccinator \_\_\_\_\_ Date \_\_\_\_\_ . Vaccinator \_\_\_\_\_ Date \_\_\_\_\_ .

Ext. officer \_\_\_\_\_ Date \_\_\_\_\_ . Ext. officer \_\_\_\_\_ Date \_\_\_\_\_ . Ext. officer \_\_\_\_\_ Date \_\_\_\_\_ .

*Figure 5: An example of the form used to register comments for each family in each campaign.*

Problems with vaccine:

Name of Household	First Campaign	Second Campaign	Third Campaign

Problems with chicken deaths:

Other problems:

More or less farmers vaccinating:

More or less chickens being vaccinated:

## 12.4 HOW TO FILL IN REGISTRATION FORM 0

The extension officer should help the vaccinator draw this form in the vaccinator's field book. The form shows what should be copied into the vaccinator's field book. The actual form does not need to be filled in.

The first table can be drawn over two pages of an open field book and the size of the columns (especially the first column) can be increased so that there is enough space to fill in the information required. Leave room at the bottom of the page for the signature and date of the vaccinator and extension officer.

The second table (Figure 5) can be drawn over the following two pages so that it also occupies all of the space in those pages.

Using these forms, the vaccinator can record information about each family for all three vaccination campaigns in each year. In this way the vaccinator can easily see if families are continuing to vaccinate or not; if new families are starting to vaccinate in each campaign; and if the number of chickens vaccinated in each campaign is increasing or not.

An explanation of how to fill in each column is described in the section on how to fill in registration form 1 below. Note also, however, that at the end of each campaign, the extension officer should meet with the vaccinator to record the information in this form and discuss the campaign with the vaccinator. At the time of this discussion, both the vaccinator and extension officer should sign and date the bottom of the vaccinator's field book for each relevant campaign.

The second page is used for the vaccinator to record any other relevant information, such as reasons why a family may have stopped vaccinating; reasons for differences in numbers of chickens registered and numbers vaccinated and/or numbers vaccinated and total chickens owned.

At the bottom of the page the vaccinator can also register information on various problems encountered in each campaign.

## Registration Form 1 – Newcastle Disease Control in Village Chickens. - Registration form by Family

To be filled in by the AEDO or AVO together with the community vaccinator. This form should remain with the extension agent.

Section \_\_\_\_\_ Type of vaccine \_\_\_\_\_ Vaccination campaign \_1\_ \_2\_ \_3\_ Year \_\_\_\_\_ Name of Vaccinator \_\_\_\_\_

Name of head of household	Sex	Village	Number of chickens registered Month:	Number of chickens vaccinated Month:	Number of chickens owned on the day of vaccination	Batch number and Observations
<b>Total number of families:</b>	<b>Totals</b>					

Name of AEDO or AVO \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

**Chicken Mortality:**

1. Were there chicken deaths in at least 3 neighbouring houses in areas where the vaccinator was working in the last 3 months? No \_\_\_\_\_ Yes \_\_\_\_\_      2. In how many houses? \_\_\_\_\_

3. Did less than 1/2, more than 1/2, or all of the chickens die in these houses? \_\_\_\_\_      4. When did they die? \_\_\_\_\_

5. Had any of these chickens been vaccinated? No \_\_\_\_\_ Yes \_\_\_\_\_      6. When were they last vaccinated? \_\_\_\_\_

7. Other problems noted by the vaccinator: \_\_\_\_\_.

## **12.5 HOW TO FILL IN REGISTRATION FORM 1**

This form should be filled in by the AEDO or AVO (depending on who is directly responsible for the community vaccinator). The data should be copied directly from the registration form in the community vaccinator's field book. The form will then stay with the extension agent directly responsible for the vaccinators.

### **12.5.1 How to fill in each column**

#### **The Titles**

Fill in the name of the Section and type of vaccine used (I-2). Circle the vaccination campaign that this form refers to, and fill in the year. Fill in the name of the vaccinator.

#### **Name of Head of Household, Sex and Sub-Village**

The first column should have the name of the head of the household where chickens were vaccinated. This should be a name that is accepted by all members of the household and will be used for all future vaccination campaigns. The second column is to identify if the household head is male (M) or female (F). The third column is to identify the name of the village where each family lives.

#### **Number of Chickens Registered and Date**

This column should contain the number of chickens that each family wanted to vaccinate before the vaccination campaign. The month that chicken registration took place should be filled in at the top of the column.

#### **Number of Chickens Vaccinated and Date**

Fill in the actual number of chickens vaccinated for each family. This number may be different to the number of chickens registered as chickens may have died or hatched since registration, or the family may have changed their mind about the number of chickens that they wanted to vaccinate. The month that vaccination took place should be written at the top of the column.

#### **Number of Chickens Owned**

This column should contain the total number of chickens owned by each family (including chicks) on the day of vaccination. This number may be different from the previous column if the family decided not to vaccinate all of their chickens. However, the vaccinator should encourage the family to vaccinate all of their chickens to better protect their flock.

#### **Payment Made**

This column contains the amount of payment that the vaccinator received from each family, whether it was in cash or the equivalent in goods.

#### **Vaccine Batch and Observations**

This column is used to register the batch number of the vaccine, which was written on the vaccine dropper. (This is for quality control purposes if there are any problems with the vaccine). Also, any other useful information should be registered here.

#### **The Totals Row at the Bottom of the Form**

The totals for each column indicated should be calculated (added up) and registered in this row.

#### **Chicken Deaths**

During chicken registration, vaccination and after the vaccination campaign, the vaccinator and extension officer (AEDO or AVO) should try to find out if chickens have been dying in significant numbers within the village. If a number of chickens had died during the last three months in more than 3 neighbouring houses, then a cross (X) should be placed by the 'Yes' option and you should indicate how many houses were affected, how many chickens died (in all of the houses combined), when this happened (dates) and if any of these chickens had been vaccinated.

## Registration Form 2 - Newcastle Disease Control in Village Chickens - Registration form by Vaccinator

To be completed by the AEDO or AVO. When completed, this form should be sent to the AEDC

Section: \_\_\_\_\_ Type of vaccine: \_\_\_\_\_ Vaccination Campaign: \_1\_ \_2\_ \_3\_ Year \_\_\_\_\_

Name of Vaccinator	Sex M,F	Village	Total number of chickens registered  Month:	Total number of chickens vaccinated  Month:	Total number of chickens owned by participating farmers	Number of farmers involved  F    M		Vaccine Distribution		Batch number and Observations
								N° of vaccine droppers received (Ex: 2 x 300 doses)	Total amount paid by vaccinator	
<b>Total number of vaccinators:</b>	<b>Page Totals:</b>									

Name of Extension Officer: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

**Chicken Mortality:**

1. Were there chicken deaths in at least 3 neighbouring houses in areas where the vaccinators were working in the last 3 months?    No \_\_\_\_\_ Yes \_\_\_\_\_
2. Which vaccinators on this form had this problem? \_\_\_\_\_
3. When did they die? \_\_\_\_\_
4. Had any of these chickens been vaccinated?    No \_\_\_\_\_ Yes \_\_\_\_\_
5. When were they last vaccinated? \_\_\_\_\_
6. Other problems noted by the vaccinators: \_\_\_\_\_.



## 12.6 HOW TO FILL IN REGISTRATION FORM 2

This form should be filled in by the AEDO or AVO directly responsible for the community vaccinators). Forms should be filled in at the end of each vaccination campaign. The information from Registration Form 1 should be summarised and used to fill in this form. The form should be sent to the AEDC

### 12.6.1 How to Fill in Each Column

#### **The Titles**

Fill in the name of the Section and type of vaccine used (I-2). Circle the vaccination campaign that this form refers to, and fill in the year. Fill in the name of the vaccinator.

#### **Name of Vaccinator, Sex and Village**

The first column should contain the name of each vaccinator from each of the Registration Form 1 sheets. The second column is to identify the sex of each vaccinator – Male (M) or female (F). The third column should contain the name of the village where each vaccinator worked.

#### **Total Number of Chickens Registered and Month**

Write the total number of chickens that each vaccinator registered for vaccination. (Use the Totals row at the bottom of each Registration Form 1). At the top of this column write the month that registrations took place. (If registrations took place during a two month period, then include both months).

#### **Total Number of Chickens Vaccinated and Month**

In this column write the total number of chickens that were vaccinated by each vaccinator. (Use the Totals rows at the bottom of each Registration Form 1). At the top of this column write the month that vaccinations took place.

#### **Total Number of Chickens Owned by Participating Farmers**

Write the total number of chickens owned by participating farmers for each vaccinator. (Use the Totals rows at the bottom of each Registration Form 1).

#### **Number of Farmers Involved**

Using the column titled 'sex' in Registration Form 1, count the total number of male and female farmers for each vaccinator.

#### **Number of Vaccine Droppers Received**

Write the total number of vaccine droppers received by each vaccinator for this particular campaign.

#### **Total Amount Paid by Vaccinator**

Register how much money each vaccinator actually paid for all droppers they received.

#### **Batch Number and Observations**

Register the batch number of the vaccine that each vaccinator received. Also, any other useful information should be registered here.

#### **Name of Extension Officer, Position and Date**

This line should contain the name of the extension officer who completed this form, their position (e.g. AEDO or AVO) and the date the form was filled in.

#### **Chicken Deaths**

Note which vaccinators registered chicken deaths in 3 neighbouring houses; the dates that the chickens died; and if and when they had been vaccinated.

### Registration Form 3 - Newcastle Disease Control in Village Chickens - Registration form by Section

To be completed by the AEDC. When completed, this form should be sent to the DAHLDO.

EPA: \_\_\_\_\_ Type of vaccine: \_\_\_\_\_ Vaccination Campaign: \_1\_2\_3\_ Year \_\_\_\_\_

Section	Total number of chickens registered	Total number of chickens vaccinated	Total number of chickens owned by participating farmers	N° of farmers involved		Number of vaccinators involved		N° of extension officers involved		N° of vaccine droppers distributed (Ex: 6 x 300 doses)	Total money received in payment for vaccine (MK)	Batch number and Observations
	Month:	Month:		F	M	F	M	F	M			
<b>Totals:</b>												

Compiled by: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

**Chicken Mortality:**

1. Were there chicken deaths in at least 3 neighbouring houses in any of the above villages? No \_\_\_\_\_ Yes \_\_\_\_\_
2. Which villages registered this problem? \_\_\_\_\_
3. When did they die? \_\_\_\_\_
4. Had any of these chickens been vaccinated? No \_\_\_\_\_ Yes \_\_\_\_\_
5. When were they last vaccinated? \_\_\_\_\_
6. Other problems noted by the vaccinators or extension officers: \_\_\_\_\_

## 12.7 HOW TO FILL IN REGISTRATION FORM 3

This form should be filled in by the AEDC. Forms should be filled in at the end of each vaccination campaign. The information from Registration Form 2 should be summarised and used to fill in this form. The form should then be sent to the district supervisor.

### 12.7.1 How to fill in each column

#### **The Titles**

Fill in the name of the EPA and the type of vaccine used (I-2). Circle the vaccination campaign that this form refers to and fill in the year of the campaign.

#### **Section**

The name of section within the EPA where vaccinations took place.

#### **Total Number of Chickens Registered and Month**

Write the total number of chickens registered for vaccination in each village. (Use the Totals rows at the bottom of each Registration Form 2). At the top of this column write the month that registrations took place. (If registrations took place during a two month period, then include both months).

#### **Total Number of Chickens Vaccinated and Month**

Write the total number of chickens that were vaccinated in each village. (Use the Totals rows from each Registration Form 2). At the top of the column write the month that vaccinations took place.

#### **Total Number of Chickens Owned by Participating Farmers**

Write the total number of chickens owned by participating farmers in each section. (Use the Totals rows at the bottom of each Registration Form 2).

#### **Number of Farmers Involved**

Fill in the total numbers of families involved in vaccinations for each village using the totals columns from each Registration Form 2.

#### **Number of Vaccinators Involved**

Count the number of male and female vaccinators from each village using Registration Form 2.

#### **Number of Extension Agents Involved**

For each village indicate the number of male and female extension workers who worked directly with vaccinators (include EPA extension officers if they worked directly with vaccinators).

#### **Number of Vaccine Droppers Distributed**

Write the total number of droppers distributed in each village.

#### **Total Money Received in Payment for Vaccine**

Write the total amount paid by vaccinators for the vaccine in each village.

#### **Batch Number and Observations**

For each village write the batch number(s) of the vaccine and any important observations.

#### **Compiled by; Position; Date**

The name of the person who filled in this form, their position and the date the form was completed.

**Chicken Mortality** Note which villages registered chicken deaths; the dates that the chickens died; and if and when they had been vaccinated.

## Registration Form 4 - Newcastle Disease Control in Village Chickens. - Registration form by EPA

To be completed by the DAHLDO. This form should be sent to the ADD.

District: \_\_\_\_\_ Type of vaccine: \_\_\_\_\_ Vaccination Campaign:        Year \_\_\_\_\_

EPA	Total number of chickens registered	Total number of chickens vaccinated	Total number of chickens owned by participating farmers	N° of farmers involved		Number of vaccinators involved		N° of extension officers involved		N° of vaccine droppers distributed (Ex: 6 x 300 doses)	Total money received in payment for vaccine (MK)	Batch number and Observations
	Month:	Month:		F	M	F	M	F	M			
<b>Totals</b>												

Compiled by: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

**Chicken Mortality:**

1. Were there chicken deaths in at least 3 neighbouring houses in any of the above Wards? No \_\_\_\_\_ Yes \_\_\_\_\_
2. Which Wards registered this problem? \_\_\_\_\_
3. When did they die? \_\_\_\_\_
4. Had any of these chickens been vaccinated? No \_\_\_\_\_ Yes \_\_\_\_\_
5. When were they last vaccinated? \_\_\_\_\_
6. Other problems noted by the vaccinators or extension officers: \_\_\_\_\_.

## **12.8 HOW TO FILL IN REGISTRATION FORM 4**

This form should be filled in by the DAHLDO. Registration Form 3 should be summarised and used to complete Registration Form 4. Once completed, this form should be sent to the ADD.

## Registration Form 5 - Newcastle Disease Control in Village Chickens. - Registration form by District

To be completed by the CAHLDO of the ADD. When completed, this form should be sent to the CVL.

ADD: \_\_\_\_\_ Type of vaccine: \_\_\_\_\_ Vaccination Campaign: \_1\_ \_2\_ \_3\_ Year \_\_\_\_\_

District	Total number of chickens registered	Total number of chickens vaccinated	Total number of chickens owned by participating farmers	N° of farmers involved		Number of vaccinators involved		N° of extension officers involved		N° of vaccine droppers distributed (Ex: 6 x 300 doses)	Total money received in payment for vaccine (MK)	Batch number and Observations
	Month:	Month:		F	M	F	M	F	M			
<b>Totals</b>												

Compiled by: \_\_\_\_\_ Position: \_\_\_\_\_ Date: \_\_\_\_\_

**Chicken Mortality:**

1. Were there chicken deaths in at least 3 neighbouring houses in any of the above Districts? No \_\_\_\_\_ Yes \_\_\_\_\_
2. Which Districts registered this problem? \_\_\_\_\_
3. When did they die? \_\_\_\_\_
4. Had any of these chickens been vaccinated? No \_\_\_\_\_ Yes \_\_\_\_\_
5. When were they last vaccinated? \_\_\_\_\_
6. Other problems noted by the vaccinators or extension officers: \_\_\_\_\_

## **12.8 HOW TO FILL IN REGISTRATION FORM 5**

This form should be filled in by the CAHLDO at the ADD. The data from each Registration Form 4 should be summarised and used to complete Registration Form 5. Once completed, this form should be sent to the CVL.

### Information about each registration form

TYPE OF FORM	WHAT IS THE FORM USED FOR?	WHO SHOULD FILL IN THE FORM?	WHEN SHOULD IT BE FILLED IN?	WHO SHOULD RECEIVE THE FORM?
<b>Registration Form 0</b>	This form should not actually be filled in. It is to be used as an example of how to draw the monitoring table in each vaccinator's field book.	The extension officer (AEDO or AVO) should help the vaccinator to draw up the table. Each vaccinator will then fill in the table in their field book	Draw up the table at least 1 week before registration. The table will gradually be filled in before and during vaccinations.	The community vaccinators keep this information in their field books
<b>Registration Form 1</b>	To register the information contained in the vaccinator field book at the end of each campaign.	The extension officer (AEDO or AVO), together with the community vaccinator.	One week after the vaccination campaign	The extension officer who directly supervises the vaccinator
<b>Registration Form 2</b>	To summarise information from each vaccinator that the extension officer supervised.	The extension officer who directly supervises the vaccinator	Two weeks after the vaccination campaign	The AEDC at the EPA
<b>Registration Form 3</b>	To summarise information from each Section	The AEDC	Four weeks after the vaccination campaign	The DAHLDO
<b>Registration Form 4</b>	To summarise the information from each EPA	The DAHLDO	Six weeks after the vaccination campaign	The CAHLDO at the ADD
<b>Registration Form 5</b>	To summarise the information from each District	The CAHLDO	Eight weeks after the vaccination campaign	The National Coordinator at the CVL

Please note that at the time of vaccine distribution a summary of the previous campaign should be sent by each of the above levels to the level below them so as to provide timely feedback to all groups involved.



### **13. Avian Influenza (Bird Flu): Questions and Answers**

#### **What is bird flu?**

Bird flu is a serious disease in birds caused by a virus. Birds such as chickens, ducks, and turkeys can get very sick and die quickly from bird flu. In Chichewa Bird Flu is known as “Chimfine cha mbalambe”

#### **Is it the same as “Chitopa”?**

No, bird flu is not the same as “Chitopa.” Bird flu does cause clinical signs that are similar to “Chitopa”; i.e. it can cause sudden death, and a high number of deaths. More importantly, humans cannot get sick with “Chitopa,” but they can get infected with, and die from, bird flu.

#### **Has it been found in Malawi?**

No, at the time of printing this manual (i.e. November 2012) bird flu has not been found in Malawi. However, bird flu outbreaks have occurred in Nigeria and other African countries. The disease has been causing major problems in Asia since 2003.

#### **How does it spread?**

The virus which causes bird flu can be found in fluid from the eyes, nose and mouth, and in faeces of infected birds. Wild birds and ducks can carry the virus without showing signs of disease. Humans can spread the virus from one flock to another through their clothing, shoes, vehicles, equipment and materials. Humans can also spread the virus by transporting and selling sick or dead birds. If it is not quickly controlled, bird flu can spread to birds in households, markets, and to the whole country.

#### **How do we prevent the spread?**

Keep your poultry healthy. If you see any of the signs listed below in your poultry, report them immediately to the community vaccinator or animal health worker, village authorities, assistant veterinary officers, the DAHLDO, the CAHLDO, regional veterinary laboratories or the Central Veterinary Laboratory in Lilongwe:

- sudden death
- high number of deaths over a short time period
- difficult breathing
- diarrhoea
- swollen eyes, face, comb
- severe weakness
- bleeding under the skin of the legs and feet

Do not kill, eat, transport or sell sick birds. Keep them penned away from the rest of your flock. Do not import poultry or poultry products from infected countries or areas where high bird mortality is occurring. Do not eat dead birds. Do not throw them in a river or pond or leave them lying around. Bury them, in plastic bags if possible and if you have masks and gloves use them while burying. If you have lime or wood ash, disinfect the surrounding area.

#### **Are people at risk?**

To date, more than 500 people in the world have been infected, and more than half of them have died. This is a high rate of death. Many of those who have died have been in countries such as Indonesia, Vietnam and Thailand, but people have also died in Egypt and Nigeria. People who have close contact with infected, sick or dead birds are at risk. These include families with small flocks of village poultry and poultry workers in live animal markets. While there is very limited evidence that bird flu transmits from person to person, there are concerns that one day it may be able to spread more easily to humans.

#### **How can we protect ourselves?**

Here are simple steps you can take to protect yourself and your family from avian influenza. These steps will also protect your village and in fact the whole country.

- Always wash your hands with soap and water, especially before and after handling birds and poultry products.
- Do not kill, eat or sell sick birds. Always report and bury birds, which have died of disease.
- Eat well-cooked birds and poultry products. Do not eat or drink blood from birds.
- Do not allow children, the elderly or sick people to come in contact with sick chickens.
- Sweep every day to keep your house, your chicken house and surrounding area clean of poultry faeces.
- Cover your mouth with a cloth (or your sleeve) when coughing or sneezing. Wash your hands immediately afterwards with soap.

### **What else can farmers do to prevent bird flu?**

If you are a farmer or have a backyard flock:

- When you buy new poultry, keep them separate for at least one week before mixing them with your other birds.
- Keep your poultry healthy by regularly cleaning their housing and by vaccinating them against preventable diseases such as Newcastle disease.
- Keep chickens, ducks, turkeys, and other types of poultry separate from one another if possible. At the very least, provide each type of poultry with separate overnight housing.
- Keep poultry separate from pigs.
- When burying dead birds, use masks and gloves, and lime or wood ash to disinfect the surrounding area, if you have them.
- If you can, keep your poultry in a closed building. Keep them away from wild birds.
- For commercial farmers, allow only essential workers and vehicles to enter the farm.
- Clean the shoes of workers entering and leaving the farm, and clean and disinfect vehicles and equipment entering and leaving the farm. Make sure to remove feces.
- Do not borrow vehicles and equipment from other farms, or loan yours to them.

### **What else can we do to prevent bird flu during food preparation and handling?**

- Separate raw meat from cooked or ready-to-eat foods to avoid contamination.
- Always wash your hands and utensils with soap and water before and after preparing and eating food.
- Eat well-cooked birds and poultry products.
- Do not eat or drink blood from birds.
- Do not eat raw poultry parts or raw eggs.

### **What is the government doing to prevent and control avian influenza (bird flu)?**

The Government of Malawi is committed to the prevention and control of avian influenza. The Government has established mechanisms for the coordination and the management of avian influenza control and pandemic preparedness planning. The Government is already taking effective measures to implement that strategy, including increasing surveillance among poultry, and establishing systems for case detection, outbreak investigation and immediate control measures.

Everyone must join to help and protect each other from the spread of avian influenza to keep the poultry and people safe and healthy.

## **14. Information Relating to HIV/AIDS**

AIDS, or Acquired Immune Deficiency Syndrome, has become a major worldwide epidemic but is especially serious in sub-Saharan Africa. AIDS is caused by the Human Immunodeficiency Virus (HIV). By killing or damaging cells of the body's immune system, HIV gradually destroys the body's ability to fight infections and certain cancers. People with AIDS can therefore more easily get sick and die from other diseases that would normally not make healthy people sick. They are also more susceptible to diseases such as malaria, tuberculosis or cancer.

Infection with HIV is incurable and can eventually kill an infected person. But it is also a virus that you can avoid if you take certain precautions. To do this, it is necessary to change your attitude towards AIDS and adopt measures that will protect your health and the health of your friends and family around you.

You can avoid catching HIV by:

- Getting tested before marriage, to ensure that you are able to manage a relationship where one or both partners may be infected;
- If you are both negative, you and your spouse being completely faithful to each other and not having sex outside of marriage; or
- Using a condom in all and any sexual relationships outside of marriage; or
- Abstaining from sexual relationships;
- Not using any sharp instruments on your body, e.g. razor blades that have been used previously by other people; and
- Using sterilised needles that have not been previously used.

By adopting these measures we can reduce the chances of getting HIV to practically zero.

You should not be embarrassed to use and talk about condoms. Asking for a condom and using it (or insisting on your partner using it), when you have sexual relations is a victory against AIDS!

The following section covers some commonly asked questions and answers about HIV/AIDS.

### **1. WHAT DOES HIV DO?**

HIV kills the "T" cells in your blood. These cells identify diseases in your body and then call other cells in your blood to come and kill the germs or diseases. HIV therefore destroys an important part of the immune system, which then allows other diseases to enter and have a serious effect on the body.

### **2. CAN HIV LIVE OUTSIDE OF THE HUMAN BODY?**

The virus starts to die as soon as it is exposed to air. HIV has never survived for more than 20 seconds after exposure to air. You therefore cannot get HIV/AIDS from things like a toilet seat. Body fluids (blood and semen) that make contact with skin will not normally spread disease, but should be cleaned off as soon as possible with soap and water.

### **3. HOW LONG DOES IT TAKE FROM BEING INFECTED WITH HIV TO DEVELOPING AIDS?**

The average period that a person stays healthy after catching HIV is between 6 to 8 years. But some people can get AIDS sooner while others only become ill after 12 to 15 years. (There is also a very small group of people who have not developed AIDS even after 15 years of being infected with HIV.) The healthier a person is when they become infected with HIV and the better they look after themselves after becoming infected (good diet and access to effective treatment), the longer a person will live before developing AIDS.

#### 4. WILL ALL PEOPLE WHO HAVE HIV EVENTUALLY DIE?

No, not all people, although most people will eventually die unless a cure is found for AIDS. Between 5 and 7% of all people infected with HIV (about 1 person in 20) live perfectly normal lives and have not died from AIDS. These people not only have access to treatment, they also have a positive attitude toward their lives and eat healthy diets. However, these methods will only work while a person is still healthy and so it is important to have blood tests for HIV before the symptoms of AIDS begin.

#### 5. HOW CAN I KNOW IF I HAVE HIV?

The only way to know for sure is to take a blood test for the presence of HIV antibodies. These tests can be done in hospitals and clinics throughout the country. When you have a test, the nurse or qualified counsellor will explain everything you need to know before and after the test.

If you have been in a sexual relationship with anyone who has HIV, there is a serious risk that you too may have become infected. **You need to act quickly and have a test done**, so that if you have been infected with HIV you can start to treat it while you are still strong and healthy.

#### 6. WHAT ARE THE SYMPTOMS OF HIV?

There are many symptoms that can indicate if someone is infected with HIV. However, many of these symptoms are also common in other minor diseases and sometimes they can be so mild that it is easy to dismiss them as unimportant. The most common symptoms are similar to the initial phases of a cold or flu without the usual dripping nose:

- Tiredness and fatigue;
- A mild fever that lasts for a few weeks;
- Persistent headaches;
- Muscular aches and pains;
- Little or no appetite;
- Nausea or vomiting;
- Swelling in the armpits or at the back of the neck;
- In some cases, blisters or skin eruptions that don't go away; and
- In some cases, a dry cough that is not related to tobacco.

**If you have one or more of these symptoms you should see a doctor as it could be an indication of HIV or perhaps another disease such as malaria or tuberculosis.**

Remember, treatment as early as possible is the key to having a long and healthy life with HIV. Only a blood test for HIV will tell you for sure if you are infected with HIV – the symptoms alone are not a good enough indicator.

#### 7. WHAT DISEASES ARE ASSOCIATED WITH AIDS?

Remember that HIV kills the “T” cells in the blood that protect the body against diseases. People with HIV can therefore catch other diseases very easily and these diseases will have a much more serious effect on them compared to people without HIV. AIDS is not any one specific disease and it can appear as one or more different diseases (for example, cancer, tuberculosis or pneumonia). Even malaria can be worse when a person is weakened by HIV.

## **8. HOW CAN YOU BECOME INFECTED WITH HIV?**

There are only three specific ways that a person can become infected:

- Vaginal or anal sexual intercourse without a condom.
- Blood – use of needles and syringes contaminated with HIV infected blood; transfusion of infected blood; sharing razors such as in traditional initiation ceremonies or shaving; accidents involving blood.
- Mother to child – during pregnancy, birth or through breastfeeding.

These are the only ways that someone can get HIV. It is not spread through casual contact such as the sharing of food utensils, towels or even kissing infected people. HIV is also not spread by insects such as mosquitoes or bedbugs.

## **9. CAN YOU SEE WHO IS INFECTED WITH HIV?**

No, HIV infected people do not show any signs of the disease until they start becoming sick, which will only occur in the last stages of the disease. However, even though an HIV infected person may seem healthy, they can still pass the disease on to other people. It is dangerous to assume that it is safe to have unprotected sexual relations with someone just because they appear to be healthy.

## **10. HOW DO PEOPLE BECOME INFECTED DURING SEXUAL INTERCOURSE?**

HIV lives in the body fluids of a person. Some types of body fluids contain high levels of HIV – such as the blood and sexual fluids – while others contain low levels – such as saliva, sweat, urine and faeces. To become infected a person must come into contact with fluids containing high levels of HIV. The act of sexual intercourse is an ideal way to transmit sexual fluids from one person to another (not only from male to female but also from female to male).

## **15. Living with HIV/AIDS**

The following section deals with strategies that can be used to improve the lives of individuals and families living with HIV/AIDS. This disease affects a large and growing percentage of the population in sub-Saharan Africa. It continues to kill our parents and our children, our brothers and sisters, our friends and our workmates, our employers and our employees. HIV/AIDS causes pain and suffering to patients and their families, it imposes a heavy financial and social burden on caring for the sick, and it leaves misery and poverty in its wake. It is therefore not just important to be aware of how to avoid catching HIV/AIDS, but also to know how to assist people and families affected by this disease, so that we can work together to diminish its effects.

Some of the problems faced by families living with this disease are:

- A greater chance of being affected by other diseases and illnesses
- Lower life expectancy
- Fewer productive family members
- Loss of skills and knowledge within the family and the workplace
- Disruption of family structures
- Higher number of female headed households
- More orphans.

All of these problems conspire to make life and survival more difficult for families and individuals affected by HIV/AIDS. These families find it difficult to produce their own food or earn extra income, which leads to reduced food security and greater poverty. Added to this is the stigma and social marginalisation of having the disease.

Extension agents can have a significant impact on how rural communities adapt to living with the consequences of HIV/AIDS. The following sections describe some of the strategies that could be promoted in rural communities as well as activities that could be used by extension agents and their families who have been directly affected by HIV/AIDS.

### **1. MORAL AND SOCIAL SUPPORT**

One of the first aspects that needs to be addressed in a community is the stigma that surrounds being HIV positive. Due to this, people are reluctant to be tested for HIV/AIDS or admit to being infected with the disease. Others tend to think that HIV is something that ‘decent’ people should not get and HIV/AIDS sufferers may receive little support from the community.

Education programs should not only cover prevention but should also aim to reduce the negative image of people affected with HIV/AIDS. It is a disease that anyone in the community could get and people suffering from this disease need support and help from their friends, family and community.

Extension agents could encourage the formation of community groups to help look after sick people or help care for children. Self-help groups are another possibility, where people and families suffering from the disease could be put in contact with one another to give mutual help and support.

### **2. GENERAL NUTRITIONAL ADVICE**

Good nutrition is important for people who are HIV carriers but have not yet fallen ill from the disease because it:

- Helps maintain good health and strong bodies, so that they can live longer and more productive lives;

- Helps to improve the effects of any medications that they may take; and
- Gives them more energy and strength to continue to help their families.

Good nutrition is also important for people suffering from the effects of AIDS because it:

- Helps the body defend itself from other diseases and infections;
- Helps the body to recover from illness; and
- Gives them more energy and strength to help themselves and others in their family.

People who have HIV/AIDS should try to eat more food and eat more often. They should eat a balanced diet that will supply them with all of the nutrients needed for a healthy body.

The following is some general nutritional advice that is especially appropriate for people with HIV/AIDS, but also applies to healthy people as well. Each day you should try to eat the following types of food:

- A mixture of cereals and root crops which give energy to the body
  - bread; rice; maize; sorghum; cassava
- Legumes and meat, which build muscles and help repair our bodies
  - cowpeas; pigeon peas; groundnuts, peas
  - chicken (and also eggs); fish; other meats
- A mixture of fruits and vegetables which help to fight disease and are important for all body functions
  - Mangoes; oranges; lemons; papaya; bananas; wild fruits
  - Pumpkin; carrots; tomatoes; cabbage; other plant leaves and garden vegetables
- Fats, oils and sugar to help give energy and stimulate the appetite
  - Oil for cooking; coconuts; cashews; cakes; biscuits
- WATER – drink 8 cups of boiled water each day

Possible activities that extension agents could assist with are:

- School and home gardens
- Nutrition classes

### **3. NUTRITIONAL ADVICE FOR ILLNESSES RELATED TO HIV/AIDS**

#### **Diarrhoea**

- To prevent diarrhoea, eat garlic, raw carrots and pumpkin seeds.

When you have diarrhoea:

- Drink a lot of liquids (clean water, soup, juices)
- Eat light foods such as bread or cooked potatoes, bananas or pumpkins
- Eat small quantities of food more often throughout the day
- Drink tea made from guava leaves.

#### **No appetite**

- Drink water, milk, juices and soft drinks
- Improve the flavour of food with spices or lemon juice
- Eat small quantities of food more often throughout the day
- Eat when you feel hungry instead of waiting for fixed meal times
- Eat with friends and family! Meals are always more enjoyable when you can share them with others.

#### **Nausea and vomiting**

- Drink water, soup, juices, water with lemon, tea

- Sit while you are eating
- Ask someone else to prepare the food
- Eat dry food such as dried cassava, bread or grilled corn
- Avoid eating sweet or fatty foods.

#### **Mouth sores**

- Chew on raw garlic, small pieces of green mango or green papaya
- Eat smooth textured foods – eg cooked maize or sorghum meal; cooked pumpkin; bananas and papayas
- Avoid all types of sugar as this promotes the growth of organisms that cause mouth infections.

#### **Skin problems**

- Eat foods that are rich in vitamins A and B6, such as eggs, green leafy vegetables, yellow or orange vegetables, liver, groundnuts, and cashews.

#### **Coughs, colds, sore throats**

- Drink a lot of water and juices
- Drink hot water mixed with lemon juice and a bit of sugar or sugar cane
- Gargle with warm water and salt.

#### **Losing weight**

- Try and eat extra food between meals
- Eat foods that give strength (protein) such as fish, chicken, eggs, other meats, beans, groundnuts, cashews
- Add more oil to your food if possible.

### **4. LABOUR SAVING STRATEGIES**

There are a number of strategies that rural families can use to reduce the time and labour needed to produce food or gain income. Extension officers could promote the following types of activities:

- Livelihood diversification – small scale enterprises, such as chicken and egg production, bee-keeping and fruit trees.
- Conservation agriculture and minimum tillage
- Improved irrigation systems
- Improved agro-processing and post harvest storage
- Promoting farmer groups to help with farmer to farmer knowledge sharing, as well as sharing of labour in the field

**Chickens and eggs** are low input in terms of time, labour and money. In households affected by HIV/AIDS, where labour is in short supply, village chickens provide a source of high quality nutrition and income without requiring much in the way of labour or money.

Eggs, in particular, offer a great nutritional bargain: they contain a lot of energy and are one of the best quality protein sources known. Eggs supply many vitamins such as A and B12, and they are one of the best food sources of vitamin K, a bone-boosting nutrient. Eggs also provide choline, a B vitamin that plays a role in brain development.