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Module 5: Community Poultry Health

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MODULE OBJECTIVES

At the conclusion of this module you will be able to:

• Describe the causes of diseases in poultry
• Recognize signs of disease in poultry and associate them with their causes
• Identify prevention and treatment strategies to control poultry diseases
• Design a poultry health plan for a community

MODULE PREVIEW

Important Points Covered in this module:

• A poultry health plan can increase household and community income and financial stability.

• Keeping good records of flock production and poultry health is key to early detection of disease and assessing flock production.

• Understanding disease transmission is important for designing actions to improve poultry health.

• There are numerous poultry diseases and they are caused by bacteria, viruses, fungi, parasites, poisons, nutrient deficiencies, and environmental conditions.

• Diseases have different levels of impact on flocks, and prevention and control strategies are shaped by those differences.

• Poultry health programs at the community or village level should involve stakeholders and local leadership in program planning.
INTRODUCTION

Now that you’ve learned about one very important poultry disease, HPAI H5N1, let’s talk about other poultry diseases and how to control and prevent them.

Poultry is important as a source of protein and nutrition for individual households and for communities.

- Meat
- Eggs

Poultry flocks can also be an important source of income.

- Meat and eggs produced in excess of a community’s needs
- Feathers
- Breeding stock
- Leather (ostrich)

Community-wide participation in poultry health programs can increase food security and household incomes.

Helping your neighbor to protect his/her flocks will help to prevent disease in your birds.

**IMPORTANT POINT**

A small investment in poultry disease prevention can result in higher poultry productivity, which can result in income that is much greater than the original investment.
A poultry health program can increase household and community income and financial stability.

Take a few moments and discuss with your small group who benefits from investing in community poultry health plans and in what ways?

Be prepared to share with the larger group.
LEsson 1
Recognizing Disease in Poultry

Learning to recognize poultry diseases is the first step to controlling them and improving community poultry health.

To detect disease, the poultry keeper needs to be able to tell the difference between a healthy and a sick bird.

Table 1. Features of healthy and sick birds.

<table>
<thead>
<tr>
<th>Healthy birds</th>
<th>Sick birds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are alert, active, and responsive.</td>
<td>Are slow moving and/or exhibit unusual behavior or postures.</td>
</tr>
<tr>
<td>Have bright clear eyes, red comb, dry nostrils, full compliment of shiny feathers (except when molting), adequate weight, normal egg production, clean feathers around the vent.</td>
<td>May have watery eyes, discolored comb and wattles, feather loss, weight loss, lay decreased egg numbers or deformed or shell-less eggs, stained area around the vent.</td>
</tr>
<tr>
<td>Convert feed into eggs and meat efficiently.</td>
<td>Grow slowly, stop eating or decrease expected weight or rate of weight gain.</td>
</tr>
<tr>
<td>Do not drink unusual amounts of water.</td>
<td>Drink excessive amounts of water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Healthy flocks</th>
<th>Sick flocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals in the flock die from old age, predators or other non-disease related causes at a low rate.</td>
<td>A flock of sick birds may experience unexplained, unusual, sudden, and/or high mortality.</td>
</tr>
</tbody>
</table>
Assessing a flock vs. assessing an individual
Knowing how many birds in a flock are sick or dead will help the poultry keeper determine the cause of their signs.

**DEFINITIONS**

**Morbidity** refers to the how long birds have been sick, how many birds are sick, and the severity of the disease in a flock.

**Mortality** refers to deaths in the flock usually over a defined period of time.

Even in a healthy flock, a small number of birds may die or get sick. When the number of sick or dead birds per the total number increases, disease should be suspected. **Production records** can alert poultry keepers that a flock is ill. Records should be kept on

- the number of eggs produced per day
- weight gain (meat birds)
- the number of sick or dead birds in the flock.

**IMPORTANT POINT**

In poultry flocks where no records are kept, few diseases or problems are ever noticed and therefore, can’t be prevented or fixed.

Flock records should be practical to create, modify, and use by poultry keepers, like the example below.

<table>
<thead>
<tr>
<th>date</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 1</td>
<td>x x x x x x</td>
<td>x x x x</td>
<td>x x x x x</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>x x x x x</td>
<td>x x x x</td>
</tr>
<tr>
<td>Feb 1</td>
<td>x x x x x x</td>
<td>x x x x x</td>
<td>x x x x</td>
</tr>
<tr>
<td></td>
<td>x</td>
<td>x x x x x</td>
<td>x x x x</td>
</tr>
<tr>
<td>March</td>
<td>x x x x x x</td>
<td>x x x</td>
<td>x x x</td>
</tr>
<tr>
<td>1</td>
<td>x x x</td>
<td>x x x</td>
<td>x x x</td>
</tr>
</tbody>
</table>

Global Livestock CRSP

Wildlife Health Center and Cooperative Extension

8 Module 5: Community Poultry Health

UC Davis School of Veterinary Medicine
EXERCISE 1: CHECK YOUR KNOWLEDGE

Now you know some of the features of sick and healthy birds. In the following settings:
- identify who would recognize the disease sign
- how it would be recognized.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Death of birds in a free-ranging village poultry system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td></td>
</tr>
<tr>
<td>How</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>Excessive thirst in birds in a free-ranging village poultry system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td></td>
</tr>
<tr>
<td>How</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>Decreased egg numbers in a semi-intensive setting (birds are free-ranging in a fenced area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td></td>
</tr>
<tr>
<td>How</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>Efficiency of converting feed to weight in a commercial confinement production system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td></td>
</tr>
<tr>
<td>How</td>
<td></td>
</tr>
</tbody>
</table>

What are some of the obstacles to recognizing disease in:
free-ranging village poultry flocks?  
semi-intensive flocks?  
commercial flocks?
LESSON 2
DISEASE TRANSMISSION

Understanding how poultry diseases are transmitted is also an important part of being able to prevent and control them.

Why do birds get sick?
- Birds in flocks get sick when a disease causing agent is passed along from sick birds resulting in disease transmission.
- Identifying how poultry flocks are exposed to disease causing agents, is the first step in preventing disease.

What are some ways that poultry diseases could enter a village?

Examples of ways that disease agents can be transmitted from sick birds to healthy flocks.
IMPORTANT POINT

How birds get disease or are injured is different in every setting.

Here are some ways that you may not have considered.

- bringing new birds into the flock
- equipment/cages that transport birds to market
- movement of birds (between households) for food
- people helping your birds like vaccinators or veterinarians
- birds that pass by on a road
- poultry waste or offal put into a river or stream that then flows to your community
- eggs and egg flats
- wild birds sharing food and water with your flock

In addition to disease agents, poultry keepers also have to prevent the exposure of their birds to other things that can injure them or make them sick.

- These things include poisons, predators and machines.
- To protect their flocks, poultry keepers should prevent poisonings and injury
- Identifying how poultry flocks are exposed to things that can injure them or make them sick, is the first step in preventing injury.

Examples of ways that birds can be poisoned or injured:

1. Birds may be poisoned when they
   a. Are given a new source of food
   b. Are given the wrong dose of medication
   c. Eat poisons directly because they can get to them or they are applied where the birds live, eat or drink

2. Predators
   a. Flocks do not have protection such as fencing or housing

3. Trauma
   a. Birds can roam onto roads, especially when searching for food or water
LESSON 3
DISEASE PREVENTION

Now that you understand how to recognize diseases and how they can enter a flock, we can use that knowledge to prevent disease transmission with biosecurity.

BIOSECURITY

Biosecurity can be used to protect flocks from almost any disease. It is less costly and more effective than treatment and/or flock replacement.

*Biosecurity has three major goals:*

1. **Isolation** of premises and poultry from sources of infection.
2. **Controlling traffic** flow in and out to limit transmission.
3. **Sanitation** of equipment and housing to destroy disease agents.

**IMPORTANT POINT**

Poor biosecurity allows the organisms that cause disease to move from sick or infected birds to unexposed birds.

VACCINATION

In addition to biosecurity, vaccination is an important tool in disease prevention.

- It should be a part of a complete disease prevention program
- It can’t replace biosecurity, sanitation, and good husbandry
- Vaccination can add to biosecurity

Can I vaccinate my birds?

The first step to figuring out if vaccination will help your birds is to determine what diseases are a threat to them.

**IMPORTANT POINT**

Vaccines can only protect birds from specific diseases. One vaccine will not work against all diseases.

Example: Chickens that are vaccinated for fowl pox have no protection from Newcastle disease.

Once you’ve determined which diseases are a threat, then there are several things to consider in deciding to vaccinate:

1. Is there a vaccine available against the disease my birds have or may get?
• Check with your local veterinarian or pharmacist to determine if a vaccine is available.
• Check with local authorities to make sure it is legal to use the vaccine in your community.

2. How old are the birds?
• Many vaccines will not work if the birds are younger than 2-3 weeks of age.

3. Are they diseased right now?
• Most vaccines will not work if the flock is already infected. Vaccination should be done before the birds are exposed.
• If your flock is diseased then any new birds or replacement flocks should be vaccinated.

The best vaccination programs are designed by animal health professionals with knowledge of your flocks and your setting.

For a complete guide to using poultry vaccines, see Handout 5A.

Notes:
**EXERCISE 2: CHECK YOUR KNOWLEDGE**
If you are a poultry keeper, identify how your free-ranging birds can be protected from disease in the following scenarios.

<table>
<thead>
<tr>
<th>Scenario 1: People buy eggs at the market in the next village and bring them home. The eggshells are fed to the village birds.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario 2: Your neighbor is going to add to her flock of chickens and purchases new birds from the city.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Scenario 3: Your cousin comes to visit and brings a chicken as a gift. You prepare the chicken and everyone enjoys a very nice dinner.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
</tbody>
</table>
LESSON 4
CAUSES OF CLINICAL SIGNS

It is important to be able to recognize the specific signs of different diseases so that you can correctly treat and control them.

Clinical signs are caused when a disease or condition affects all or part of a bird’s body.

<table>
<thead>
<tr>
<th>Organ system</th>
<th>Function</th>
<th>Examples of clinical signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory</td>
<td>Breathing</td>
<td>Gasping, coughing</td>
</tr>
<tr>
<td>Digestive</td>
<td>Eating, defecating, weight gain</td>
<td>Thin birds, abnormal feces</td>
</tr>
<tr>
<td>Skin &amp; feathers</td>
<td>Protection from the environment</td>
<td>Sores, feather loss</td>
</tr>
<tr>
<td>Nervous</td>
<td>Coordination, standing, walking</td>
<td>Twisted neck, rolling, can’t hold head up</td>
</tr>
<tr>
<td>Reproductive</td>
<td>Laying eggs, producing chicks</td>
<td>Decreased egg numbers, chicks don’t hatch</td>
</tr>
<tr>
<td>Muscles &amp; skeleton</td>
<td>Walking, flapping wings</td>
<td>Cannot stand, swollen joints</td>
</tr>
<tr>
<td>Immune</td>
<td>Protection from disease, response to vaccination</td>
<td>Frequent infections</td>
</tr>
</tbody>
</table>
Example of an organ system: The respiratory system includes all of the parts of the bird that are involved in breathing. The function of the respiratory system is to provide oxygen to the other tissues and organ systems.
Examples of some clinical signs in poultry.

Nervous signs

Digestive Signs

Respiratory signs
Skin signs

Egg quality signs
Diseases can be caused by things you can see and things that you can’t, including bacteria, viruses, fungi, parasites, and poisons. An incomplete diet may also cause disease.

1. **Bacterial** diseases can be treated with antibiotics.

2. **Viral** diseases cannot be treated with antibiotics. Vaccines can be effective for preventing some viral diseases.

3. **Fungi** may cause illness either by growing in the birds or by producing poisons. There are no treatments for fungal diseases but they can be treated by cleaning the environment.

4. **Parasites** can irritate and annoy birds, and some can transmit bacteria and viruses. Parasites are categorized as either internal or external, depending on where they live in or on the bird.

   - **External parasites** bite and irritate birds but can also cause blood loss and can transmit diseases. *Mites, lice, and ticks* are all external parasites. *Flies, fleas, beetles,* and *mosquitoes,* although they live both on and off the bird, can transmit diseases like fowl pox between birds and, they can concentrate poisons, like botulinum.

   - **Internal parasites** can be very small (like coccidia) or very large (like most worms). There are treatments and vaccines for some internal parasites.

5. **Poisons** like botulinum and aflatoxin are produced by living organisms (fungi and bacteria). Poisons that are made by humans, like pesticides or disinfectants, can also cause clinical signs in poultry if they eat or drink them.

6. **Nutritional deficiencies** can result in signs of illness and death, especially in young birds. Once the deficiency has been identified and corrected, the birds will often make a rapid recovery.

7. **Environmental conditions**, especially heat, can kill large numbers of birds and is one of the key causes that should be considered when there is high mortality. Heat loss is more common in confined birds than those that are free-ranging.

8. **Predation** usually results in the loss of a few birds rather than whole flocks.
Investigating the causes of clinical signs

**IMPORTANT POINT**
The cause of clinical signs can usually be figured out with careful investigation.

1. What age are the birds with the signs?
   - Some diseases affect chicks and adults differently

2. Look into recent activities that may have clues as to the cause. These events may include:
   - the arrival of a new food source;
   - addition of new birds to the flock
   - deaths and sickness in nearby villages
   - adoption of a new management system, for example, changing from free range to confinement

3. Which species have signs of disease?
   - Some diseases can only infect one species
   - Diseases that appear in several species, often affect one species more than another

4. What are the clinical signs?

5. How many birds in the flock are sick or dead?

6. What is the impact on production?
   - Eggs
   - Bird weight
Diseases of poultry

Bird diseases and conditions can be divided into three categories.

Category 1 Diseases:

1. Death in the flock is very high - often up to 100%.
2. Multiple organ systems (respiratory, digestive, nervous, reproductive, etc.) are affected by these diseases.
3. Trade restrictions may be associated with these diseases; quarantines and notification of animal health authorities may be required.
4. Prevention through vaccination and biosecurity are the only options. Treatment of active disease is ineffective. Stamping out flocks may be the only option for controlling the disease once birds are infected.
5. See examples in the tables in Handout 5D.

Category 2 Diseases:

1. Mortality is lower than in Category 1 disease and/or treatment is possible.
2. Only one or a few organ systems are involved.
3. These diseases limit how much income a community can earn from poultry flocks; they result in the death of some birds, decrease egg production, and/or lower feed conversion rates.
4. There are medications, vaccinations, and other treatments available for these diseases.
5. See examples in the tables in Handout 5D.

Category 3 Diseases:

1. These are conditions rather than diseases, and are not caused by organisms that are spread between birds.
2. Depending on the cause, they may affect multiple organ systems.
3. They are environmental in origin and control is mostly through providing adequate housing and sanitation.
4. Solutions to these problems involve either 1) removal of a toxin, 2) removal of a danger (predators), or 3) a correction of a nutritional deficiency.
5. See examples in the tables in Handout 5D.
EXERCISE 3: USING THE DISEASE FLOW CHART AND TABLES

Purpose: This exercise is meant to give you some practice at using the Disease Flow Chart (Handout 5C) and the Poultry Disease Tables (Handout 5D) in different situations.

Handouts 5C and 5D are designed to be used together. The Disease Flow Chart (Handout 5C) helps you to determine the most likely causes of the clinical signs in a flock of birds using the information available to you. The diseases are listed as numbers and those numbers correspond to the Poultry Disease Tables (Handout 5D).

For example, if you encounter a multi-age, multi-species flock in which the ducks are having diarrhea, difficulty walking and some are gasping for air but all other birds are healthy, you can follow the Disease Flow Chart (Handout 5C) to a diagnosis of #3, #15, or #18. Looking at the disease tables, you will see that #3 corresponds to Duck viral enteritis, #15 corresponds to Fowl cholera and #18 corresponds to Chlamydiosis. Based on the disease descriptions in the Poultry Disease Tables (Handout 5D), you might conclude that #3 is the most likely since the description indicates that only ducks are affected. In a real world situation, you might want to ask some additional questions or take a closer look at the situation to figure out the best choice.

Instructions: Based on the setting(s) and scenario number(s) on the next page that your small group is assigned, fill in the table(s) by following these steps. Be prepared to share your answers with the larger group.

1. Identify the possible causes of clinical signs following the Disease Flow Chart (Handout 5C)

2. Refer to the Poultry Disease Table (Handout 5D) descriptions and choose the most likely cause of disease and explain why

3. Determine which disease category(s) this falls into

4. Identify control and/or treatment options
<table>
<thead>
<tr>
<th>Setting: Village free-range system. Birds include ducks, geese, and chickens of all ages.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scenario 1:</strong> The birds in the village are sneezing and two of the 10 ducks died after having difficulty breathing.</td>
</tr>
<tr>
<td><strong>Scenario 2:</strong> Chickens have raised scabs on their eyelids. Some have died. They are not eating. Egg numbers are decreased.</td>
</tr>
<tr>
<td>Setting: Semi-intensive system. A multi-age flock of chickens confined to an area that is fenced. Nest boxes are provided and eggs are gathered for sale.</td>
</tr>
<tr>
<td><strong>Scenario 3:</strong> Many birds are suddenly found dead and few birds are still alive. Birds that are alive, are down on the ground, some are paddling.</td>
</tr>
<tr>
<td><strong>Scenario 4:</strong> 10 out of the 100 chicks that were just placed, have died. The remaining ones are gasping and are huddled under the brooders. The adult birds on the farm have no symptoms, but about a month ago, they were sneezing and some strange looking eggs were noticed.</td>
</tr>
<tr>
<td>Setting: Commercial egg producer. Multiple flocks on the farm, each flock is a different age from 1 day of age to 2 years of age.</td>
</tr>
<tr>
<td><strong>Scenario 5:</strong> Workers enter a poultry house and encounter silence. After further examination, they find that in the first few cages, all or most of the birds are dead. They leave the house to figure out why. After discussion with workers from other houses, they find out that this is the only house affected and that all other birds are healthy.</td>
</tr>
<tr>
<td>Practice 1</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Setting Type</strong></td>
</tr>
<tr>
<td><strong>Scenario Number</strong></td>
</tr>
<tr>
<td><strong>1. Identify Possible Causes of Clinical Signs</strong></td>
</tr>
<tr>
<td><strong>2. Choose most likely cause and explain why</strong></td>
</tr>
<tr>
<td><strong>3. Which disease category(s) does this fall into?</strong></td>
</tr>
<tr>
<td><strong>4. What are your control and/or treatment options?</strong></td>
</tr>
</tbody>
</table>
### Practice 2

<table>
<thead>
<tr>
<th>Setting Type</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario Number</td>
<td></td>
</tr>
<tr>
<td>1. Identify Possible Causes of Clinical Signs</td>
<td></td>
</tr>
<tr>
<td>2. Choose most likely cause and explain why</td>
<td></td>
</tr>
<tr>
<td>3. Which disease category(s) does this fall into?</td>
<td></td>
</tr>
<tr>
<td>4. What are your control and/or treatment options?</td>
<td></td>
</tr>
</tbody>
</table>
LESSON 5
DISEASE TREATMENT

Now that you’ve learned about how to figure out the cause of clinical disease in a flock, it's time to learn about the treatment options available.

In the poultry disease tables (Handout 5D), you can see that the only diseases for which medication is an option, are those in Category 2.

For the Category 1 diseases, the only option is prevention through vaccination and biosecurity.

For Category 3 diseases, removing the source of the problem, protecting the birds from injury and correcting deficiencies are the solutions.

Treatments are limited to use for Category 2 diseases and only for some. Mostly, treatments are useful for diseases caused by bacteria and parasites.

Medication
Sometimes, although a medication that could be used is available for other animals or humans, it is not safe to use for poultry. That is because:

- Medications given to egg-laying birds can go into their eggs.
- Medications given to meat birds, can go into their meat.
- Humans eating eggs or meat tainted with medications, can get very sick.
- Withdrawal times should be strictly followed to make sure that humans never accidentally get medications given to poultry
- Medications not meant for poultry have not been tested to figure out their withdrawal times

*Can I medicate my birds?*
Medication is only going to work, when a bird is infected with a disease agent that the medication can kill. In most cases, medications should be given when a problem has been identified and not to prevent possible, future problems.
Why are my birds still sick if they have been medicated?
There are several reasons that this may happen, the most common are:

- The cause of the clinical signs, can’t be treated with the medication being used
- There is more than one disease causing the clinical disease. For example, the medication may treat the bacterial disease but not the viral disease that is also there.
- It may take a few days for the medication to work. Make sure you medicate for the entire recommended treatment period.

**IMPORTANT POINT**

There are very few medications that can be safely used to treat poultry.

*Information about medications and their uses is in Handout 5E.*

*Notes:*
Sanitation
To properly clean and disinfect an area occupied by poultry:

- The areas that are potentially contaminated must be identified. This may be a challenge when birds are free-ranging.
  - The key to figuring out where birds have been, is to determine how they are getting what they need.
  - What do they need?

- All organic material should be removed
  - This includes leftover food, eggs, feces

- All birds should be removed before beginning
  - These birds should not return to the area because they will very likely carry the disease agent to the new birds
  - Can you think of alternative strategies to use when the birds can’t be removed?

- An effective strategy for sanitation should be identified before beginning the process
  - This includes selecting a disinfectant that will work in your setting (Handouts 5E and 5F provides more information on how the various classes of disinfectants can be used).
  - Sometimes waiting is the only solution because other cleaning and disinfecting procedures will not work

IMPORTANT POINT
Sanitation is the way to break the transmission of disease agents between generations of birds. It is key to both disease prevention and response.

Information about disinfectants and their uses is in Handout 5F.
EXERCISE 4: USING THE POULTRY MEDICATIONS TABLES

**Purpose:** This exercise is meant to give you some practice at using the Poultry Medications and Disinfectants Tables (Handout 5E) in different situations.

**Instructions:** Read through the following scenarios and answer the questions that follow each one, using what you’ve just learned and the Poultry Medications and Disinfectants Tables (Handout 5E). Be prepared to share your answers with the larger group.

**Scenario 1:** A family has a small flock of chickens who are loose in the yard and who roost in one corner of their house. The house has a dirt floor. The chickens have Infectious Bursal Disease.
- What points would you consider when choosing a sanitation method?

  ____________________________________________

- How would you sanitize this environment?

  ____________________________________________

- How would you treat this disease in these birds?

  ____________________________________________

- What steps would you advise for the future?

  ____________________________________________
Scenario 2: A family has a flock of chickens and ducks that are kept in a fenced area in their yard. The birds have a wood shelter. A tub of water is kept in the fenced area as drinking water for the birds and as a pool for the ducks to swim in. The fenced area is open on the top. Occasionally, dogs get into the pen and kill a chicken. The chickens have Mycoplasmosis.

- What points would you consider when choosing a sanitation method?

- How would you sanitize this environment?

- How would you treat this disease in these birds?

- What steps would you advise for the future?

Scenario 3: A poultry keeper has one poultry house made of concrete and metal on a hillside without any other buildings nearby. He has several hundred young chickens who all have symptoms of coccidiosis.

- What points would you consider when choosing a sanitation method?

- How would you sanitize this environment?

- How would you treat this disease in these birds?

- What steps would you advise for the future?
Scenario 4: A store that sells live birds and freshly cleaned carcasses for food would like to completely clean their concrete and metal building one day a month to help control the spread of poultry diseases and to make their shop more attractive to customers. They have recently had problems with feather mites on the birds.

- What points would you consider when choosing a sanitation method?

- How would you sanitize this environment?

- How would you treat this disease in these birds?

- What steps would you advise for the future?

Scenario 5: A poultry keeper has a flock of about twenty ducks and geese that he keeps in a fenced area outside. The fenced area is covered, has a small pond, and shelter for the birds. Recently he found many birds dead from botulism.

- What points would you consider when choosing a sanitation method?

- How would you sanitize this environment?

- How would you treat this disease in these birds?

- What steps would you advise for the future?
LESSON 6
DEVELOPING A POULTRY HEALTH PLAN

You have learned about different poultry health problems, how to recognize them, and what options you have to prevent or control them. Now let’s work on understanding the important parts of developing a sustainable poultry health plan for communities in your district.

DEFINITION

A community poultry health plan outlines how community members will contribute to and benefit from poultry disease prevention and control strategies.

Prioritize

The first step is to decide which poultry health problems are the most important in your district. Keep in mind that Category 1 diseases have the highest level of impact and should always be a high priority for prevention and control.

- Which poultry diseases contribute to the biggest losses in your community?

In order to get the most return for your investments in a community poultry health plan, it is important to identify which prevention and control strategies are realistic to invest in.

- What prevention methods are available?
- Which control strategies are appropriate?

IMPORTANT POINT

Category 1 diseases have the highest level of impact and should always be a high priority for prevention and control.

Engage

Stakeholders include the many different people affected by poultry health and production

- farmers and commercial poultry keepers
- community leaders
- business and market owners
- healthcare workers

DEFINITION

A stakeholder is a person who is directly affected by or involved in an issue.
It is important to know who these people - and organizations, groups and institutions - are, what skills and knowledge they have, and how they may benefit from healthier poultry in your community. With this information, you can determine what role they can play in your plan and how you can get them to participate.

**IMPORTANT POINT**

Poultry health programs at the community or village level should involve stakeholders and local leadership in program planning.
EXERCISE 5: IDENTIFY STAKEHOLDERS

Identify stakeholders that need to be involved in a poultry health plan in your district. Fill in the table on the next page, answering each question about stakeholder groups. Be prepared to share your answers with your group. Be prepared to share your answers with the group.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>How do they benefit from healthy poultry?</th>
<th>What role can they take?</th>
<th>How can you raise their awareness?</th>
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<tbody>
<tr>
<td>Community Leaders</td>
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<td>Farmers</td>
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<td>Community health workers</td>
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<td>Agricultural Extension workers</td>
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<td>NGO representatives</td>
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<td>Children</td>
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<tr>
<td>Business owners</td>
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<td></td>
<td></td>
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<tr>
<td>Commercial Poultry Producers</td>
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Cover Costs

As mentioned in other lessons, a small investment in poultry disease prevention can lead to big benefits from improved poultry production.

Prioritizing where to invest in poultry health is key to being able to prevent the most devastating diseases and thus, maximize the benefits.

Determining how to pay for, store and transport effective vaccines and medications is an important part of developing a community poultry health plan.

- What are some of the challenges in covering the costs of investing in poultry health in your district?
- What national and/or local resources exist that may be able to help with the initial start up costs of a community poultry health plan?
- Are there other costs that need to be covered to make a plan successful?

Strengthening existing opportunities for poultry producers to sell their products from larger, healthier flocks is also an important part of planning for poultry health improvement.

- Which poultry products are being sold in your district? Who is buying them?
- How can you help to create more and/or new demand for poultry products to ensure that people will be able to make a profit if poultry productivity increases?

DEFINITION

Market linkages are the connections between someone producing a product and someone buying it. Linking producers to markets for their products is an important way of increasing household and community income and financial stability.

Market development refers to the creation and support of markets for producers to sell their products. This usually means creating more demand for a product.

Build Capacity

Supporting stakeholders with training in skills to address poultry health problems allows a community to be more self-sufficient. This training and support can be in any area:

- recognizing poultry diseases
- record keeping
- marketing poultry products
- organizing community involvement
Training and support should be designed according to the needs and circumstances of your district and should be carried out in an appropriate way for the target audience.

- Identify the stakeholders in your district that may need support in order to carry out the community poultry health plan.
- Which areas of training would be most useful?
- What formats would be appropriate for the different stakeholder groups?

**DEFINITION**

**Capacity building** is more than training. It is the process of helping people understand the skills and knowledge needed to accomplish something.

**Implement**

Following through with the plan for community poultry health is the next step. The more motivated stakeholders are to be involved in carrying out their part of the poultry health plan, the more successful the community will be at meeting their goals - whether it’s to vaccinate for a disease or improve breeding poultry stock, etc.

**Monitor and Evaluate**

A very important part of carrying out a poultry health plan is making sure that you know what is working to improve or maintain poultry health.

Evaluating what is a success and what needs to be changed is an important way to make sure that a poultry health plan is successful for a long time.

- What things are important to keep track of and measure as indicators of how well a poultry health plan is working in a community?

**Notes:**
EXERCISE 6: CHECK YOUR KNOWLEDGE

Read the following case study and answer the questions after each section to apply what you have just learned about poultry health planning at the district level.

Newcastle Disease Prevention and Control - Tanzania

National and local animal health and NGOs identified Newcastle Disease (ND) as one of the major chicken health problems in a large district in the Mwanza region of Tanzania. In February of 2005 a collaborative project focused on improving village chicken health was started in 30 villages. The goals of the project were:

1) to improve the knowledge of the veterinary extension staff and community based poultry stakeholder groups about the thermostable ND vaccine,
2) to increase rural poultry productivity,
3) to promote market development strategies, and
4) to establish ND vaccine delivery systems at the village level.

Meetings were held with community leaders and household poultry producers. Training needs were identified and farmers associations were formed - each with an elected chairman, a secretary, and a treasurer. These groups were trained about the Newcastle disease, about the vaccine: how to transport and deliver it, and about how to set up a collective fund to cover the costs of the vaccine purchase and delivery.

The regional veterinary investigation center trained farmers to be community vaccinators in May of 2005 during the first chicken vaccination campaign. The best community vaccinators from the May 2005 training carried out later vaccinations in August and December of 2005 and April of 2006. During these later campaigns, the community vaccinators charged a small fee for vaccinating the poultry in their village and those in surrounding villages. This fee covered the costs of their transportation and time (since they couldn’t be working on their own farms at the same time).

What poultry health problem was identified as a high priority and what control strategy was decided on?
Who was involved in the project? What roles did they play?

How were the costs covered? What kinds of market development occurred?

How was community participation encouraged and supported?

Who was trained and in what areas?

After one year of the project, the following things were observed:

1) household poultry production has increased,

2) household consumption of chicken meat and eggs has increased,

3) household income from chicken products (meat, eggs, etc.) has increased and farmers are able to invest some of that income in school fees, healthcare for the family and even other livestock

4) there are enough funds from vaccination fees (paid by farmers to the community vaccinators) to maintain a savings account for the next community vaccination round

5) the increased demand for vaccines has created incentive for the vaccine manufacturer and distributors to have a supply available

6) neighboring communities are interested in becoming involved in the project.
What indicators can be used to tell if the vaccination program had helped meet the project goals?

__________________________________________________________________________________
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What elements of the project helped to promote community involvement and self-sufficiency?

__________________________________________________________________________________
__________________________________________________________________________________
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Notes:
EXERCISE 7: Design a poultry health plan for your district
At your table, working as a group, design a community or village-level Newcastle disease vaccination program plan appropriate for your district (or in the district you define as a group):

Discuss each of the components you would include and fill in the tables below.

Refer to the questions on the previous pages of this lesson to help focus your discussion and plan. Be prepared to report back to the group.

1. Identify and describe your setting:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

2. Fill in the tables - Don’t forget to include important elements such as record keeping, training and coordination, access to the vaccine, roles and responsibilities of members of the community and how costs will be covered.

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<tr>
<th>Program component</th>
<th>Description of the component methods and activities</th>
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AFS Module 5: References and Resources

Poultry Disease Information and Prevention and Control Methods

Community Organization and Planning for Livestock and Public Health

Resources for General Community-Based Human and Animal Health Initiatives
International Network for Family Poultry Development (INFPD)

An independent voluntary association funded by FAO and administered by a seven-member Executive Committee. Other international organizations such as CTA (Technical Centre for Agricultural and Rural Co-operation, Wageningen, The Netherlands) and IDRC (International Development Research Centre, Ottawa, Canada) are also involved.

The Hesperian Foundation - USA
1919 Addison Street, Suite 304, Berkeley, CA 94704 USA
http://www.hesperian.org

Resource for and non-profit publisher of information on community based initiatives in village health, women’s health, disabled children’s health, dental health and environmental health where there are limited formal resources to address these issues. Materials available in print and on-line in multiple languages.

Heifer International - USA
1 World Avenue, Little Rock, AR 72202, USA
http://www.heifer.org

HI uses a model of direct community involvement in addressing issues of sustainable agroecological development. They facilitate livestock health and husbandry training programs as related to production for small scale and community farms in underserved communities both in the USA and Europe as well as in developing countries.
Christian Veterinary Mission - USA
19303 Fremont Ave N., Seattle, WA 98133, USA
http://www.cvmusa.org/NETCOMMUNITY/Page.aspx?&pid=252&srcid=183

This organization facilitates and coordinates veterinary and animal health missions to underserved communities around the world. They operate largely off of a "parachute" model, however training and capacity building for community-cased animal health and disease prevention and control are becoming more a part of their mission/goals. This site offers access to easy to understand reference materials on animal husbandry and veterinary medicine, including a manual addressing zoonoses and the “Where there is no veterinarian” book.

Sustainable Sciences Institute - USA
870 Market Street, Suite 764, San Francisco, CA 94102 USA
http://www.ssilink.org

Non-profit organization that develops scientific research capacity in areas with pressing public health problems. This organization helps local biomedical scientists gain access to training, funding, information, equipment, and supplies, so that they can better meet the public health needs of their communities.

World Neighbors International Headquarters _USA
4127 NW 122 Street, Oklahoma City, OK 73120, USA
http://www.wn.org

Teaching materials designed from program experience for use in the specific country and locality. Topics include health and nutrition, family planning, community development and agriculture, in English, French, and Spanish.

Women’s International Network - USA
187 Grant Street, Lexington, MA 02173 USA
http://www.feminist.com/resources/bookstore/inter/

Flip charts, books, and slides on women and children’s health care, including hygiene program development.

Dept. for International Development, Animal Health Programme - UK
Centre for Tropical Veterinary Medicine, University of Edinburgh
Easter Bush Veterinary Centre, Roslin, Midlothian, EH25 9RG, Scotland
Tel: +44 (0)131 650-6287; Fax: +44 (0)131 650-7348; E-mail: ahp@vet.ed.ac.uk

DFID contributes to sustainable development by improving the livelihoods of poor people in developing countries through reduced poverty and suffering. Efforts to increase food and agricultural production are implemented in a socially, economically and environmentally sustainable way. Project reports and background information on animal health in various regions are available on their website.
Development Bookshop / Practical Action Publishing - UK
The Schumacher Centre for Technology and Development
Bourton on Dunsmore Rugby, Warwickshire, CV23 9QZ, United Kingdom
Tel: +44 (0)1926 634501; Fax: +44 (0)1926 634502
http://developmentbookshop.com/index.php

Offers a wide range of titles on international development and related issues from Practical Action Publishing and other publishers. Topic areas include animal health and husbandry, human health, community organizing and development, sustainable agriculture, economic development, etc.

International Development Research Centre (IDRC) - CANADA
P.O. Box 8500, Ottawa, Ontario, Canada K1G 3H9
http://www.idrc.ca

Magazines, brochures, videos, and other materials on health, agriculture, and development. Materials in English, Spanish, French, and Arabic, some at no cost.

UNESCO - FRANCE
7, place de Fontenoy, 75352 Paris 07 SP, France
http://www.unesco.org

The United Nations Educational, Scientific and Cultural Organization (UNESCO) provides for the dissemination and sharing of information and knowledge - while helping Member States to build their human and institutional capacities in diverse fields. There are several applicable toolkits available on the web site for supporting, teaching and training community health advocates, teachers and healthcare workers in how to evaluate and implement hygiene programs at multiple points in a community.
*for specific hygiene and health education resources, see:
http://portal.unesco.org/education

Peoples Health Movement - EGYPT
C/O AHED, # 17, Beirut St. Apt. 3/501, Heliopolis, Cairo, Egypt
http://www.phmovement.org

The People’s Health Movement is a coalition of grassroots groups, non-governmental organizations (NGOs), women’s groups, international organization, and activists from around the world, who are dedicated to challenging the prevailing system of health care delivery that is failing to serve most of the poor worldwide.

African Medical & Research Foundation - KENYA
AMREF Book Distribution Unit, P. O. Box 30125, Nairobi, Kenya http://www.amref.org

Wide range of low-cost, practical manuals and books on primary health care.

Arab Resource Collective - LEBANON
P.O. Box 13-5916, Beirut, Lebanon
http://www.mawared.org

Books, teaching aids and other educational resources in Arabic and English, for the use of community workers in health, education and development projects, and to facilitate communication and networking among workers and organizations in the Arab world.

Christian Medical Association of India - INDIA
2, a-3 Local Shopping Centre, Janakpuri, New Delhi 110 058, India
http://www.cmai.org

Health and community development resources, including the Contact newsletter of the World Council of Churches.

ENDA - Environmental Development Action in the Third World - SENEGAL
Enda-diffusion, B.P. 3370, Dakar, Senegal
http://www.enda.sn

French language information and materials for grassroots development, including health and appropriate technology.

Health Action Information Network (HAIN) - PHILIPPINES
#26 Sampaguita Ave. Mapayapa Village, Capitol Dist. 1127, Quezon City, Philippines
http://www.hain.org

Books and newsletters on a variety of health topics.

TAPS—Temas Atuais na Promoção da Saúde - BRAZIL
Caixa Postal 71, 13280-970 Vinhedo, Sao Paulo, Brazil
http://www.taps.org.br

Portuguese language health information and teaching materials.

Codex Alimentarius - ITALY
Viale delle Terme di Caracalla, 00153 Rome, Italy
Tel: +39(06)5705.1; fax: +39(06)5705.4593; E-mail: Codex@fao.org
http://www.codexalimentarius.net/web/index_en.jsp

The Codex Alimentarius Commission was created in 1963 by UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO) to develop food standards, guidelines and related texts such as codes of practice under the Joint FAO/WHO Food Standards Program. One of the main purposes of this Program is protecting consumers' health.