Animal Health and Welfare
## Definitions used in Health Management


<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Disease</td>
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<tr>
<td>Agent of disease</td>
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<tr>
<td>Infectious agents</td>
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<tr>
<td>Contagious disease</td>
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<tr>
<td>Infective organism</td>
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<td>Host</td>
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<td>Pathogen</td>
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<td>Parasite</td>
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<td>Vector</td>
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<tr>
<td>Intermediate host</td>
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<td>Endemic</td>
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<td>Notifiable diseases</td>
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<tr>
<td>Biosecurity</td>
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Poultry Health

Use the website http://www.poultryhub.org/poultrypedia/poultry-health-management/ to complete this activity.

List five causes of disease in poultry.
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List three non-infectious causes of diseases in poultry.
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List eight infectious causes of diseases in poultry.
_______________________  ___________________  ___________________  ___________________

What are internal parasites and name three that are harmful to poultry?
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___________________________________________________________________________

What are external parasites and how can they harm poultry?
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________

List five management practices that help in the prevention of disease.
___________________________________________________________________________
___________________________________________________________________________
___________________________________________________________________________
Common Pathogens and Parasites of Poultry

Research the symptoms and treatments for each of the common pathogens and parasites of poultry. Some websites that may help include

http://www.poultryhub.org/poultrypedia/poultry-health-management/
http://www.poultryhub.org/bird-health-and-disease/

SYMPTOMS

TREATMENTS

SYMPTOMS

TREATMENTS

<table>
<thead>
<tr>
<th>SYMPTOMS</th>
<th>TREATMENTS</th>
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<tbody>
<tr>
<td><strong>Internal parasite – Roundworm</strong></td>
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<tr>
<td><strong>Pathogen – bacteria</strong></td>
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</table>

External parasite – Lice

External parasite – Mites

Poultry Health Management
Read sections 1 to 3 in http://www.poultryhub.org/poultrypedia/poultry-health-management/ to find out about the principles and causes of infectious diseases. For each of the eight main categories of infective organisms, find examples of each that affects poultry. You can find more information about the categories of disease at http://www.poultryhub.org/bird-health-and-disease/types-of-disease/

<table>
<thead>
<tr>
<th>Categories of infective organisms</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Bacteria</td>
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<td>Viruses</td>
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<td>Chlamidia</td>
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<td>Fungi</td>
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<td>Mycoplasmas</td>
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<td>Protozoa</td>
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<tr>
<td>Internal parasites</td>
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<td>External parasites</td>
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Using the information above, answer the following questions:

1. Bacteria
   What are the two ways that Pathogenic bacteria can harm the body systems?
   __________________________________________________________
   __________________________________________________________
   What class of drugs is commonly used to treat bacteria?
   __________________________________________________________
   __________________________________________________________

2. Viruses
   What are viruses reliant upon to live and reproduce?
   __________________________________________________________
   __________________________________________________________
How can the threat of viruses be managed in a poultry flock?

3. Fungi
   Fungi absorb nutrients from living or dead organic matter that they grow on. What are the two ways fungi infections cause harm to poultry?

4. Protozoa
   What part of a chicken’s body is affected by diseases caused by protozoa?
   What are two ways that diseases caused by protozoa are usually treated?

5. What is the usual treatment of diseases caused by Chlamidia and Mycoplasmas?

6. List five management practices and how they help maintain a healthy flock?

7. Make a list of things to look for that indicates that a bird is unhealthy.
Disease

The spread of infection

The extent to which an infection will spread throughout a population depends upon its size and density, the number of individuals in the population who are susceptible, the environmental conditions and the virulence of the infection. We can reduce the risk of disease spreading by changing any of these factors. Examples of this would be vaccinating to boost immunity in the host, isolating diseased stock to make it more difficult for disease to spread, and spraying for biting insects that carry disease.

Where a disease spreads rapidly through a population it is called an epidemic. A disease may stay in a population at very low (or endemic) levels and only flare up occasionally.

How infection takes hold

Pathogens can gain entry to the body by direct contact, airborne organisms, ingestion of contaminated food, biting insects, cuts and abrasions and inheritance from parent to offspring.

A convenient way of thinking about diseases is by using a concept called the "Disease Triangle". Disease represents the interaction between three factors (the three corners of the triangle): a susceptible host, a pathogen (disease causing organism) and a favorable environment. If all of these factors are present, disease results; if one or more of the factors are not present, then disease does not occur.

The Disease Triangle
Methods of disease control can be thought of as modifying the disease triangle by reducing or eliminating one of the corners of the triangle. For example, if you vaccinate animals against clostridial diseases you are eliminating the "susceptible host" and can thus reduce or prevent disease. Similarly, for bacterial infections, by using antibiotics, you can reduce or eliminate disease because you are eliminating the pathogen. Finally, you can reduce or eliminate a "favorable environment" for something like internal parasites by removing the habitat that the parasite needs to complete its lifecycle.


Use the information about the Disease Triangle and the websites above to answer the following questions for coccidiosis in poultry:

1. Favorable environment
   
   What are the factors that affect poultry health (and make them susceptible to disease)?
   
   ____________________________________________________________
   
   ____________________________________________________________
   
   ____________________________________________________________
   
   What are the factors that affect coccidiosis viability?
   
   ____________________________________________________________
   
   ____________________________________________________________
   
   ____________________________________________________________

2. Pathogen
   
   What is the coccidiosis cycle?
   
   ____________________________________________________________
   
   ____________________________________________________________
   
   ____________________________________________________________
   
   How is it transmitted host to host?
   
   ____________________________________________________________
   
   ____________________________________________________________
   
   ____________________________________________________________
How would you assess the level of coccidiosis in the host and in the environment?

___________________________________________________________________________

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___________________________________________________________________________

3. Susceptible host

What are the symptoms of coccidiosis?

___________________________________________________________________________

___________________________________________________________________________

___________________________________________________________________________

How do affected poultry help to complete the coccidiosis cycle and spread the disease?

___________________________________________________________________________

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___________________________________________________________________________

What influences the level of immunity to coccidiosis in poultry?

___________________________________________________________________________

___________________________________________________________________________
Vaccination

Read how vaccines work then research a definition for the following:

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<th>Immunity:</th>
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<td>Antibodies:</td>
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<td>Infectious bronchitis:</td>
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<td>Marek’s disease:</td>
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<td>Newcastle disease:</td>
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In the Resource Kit you will find a DVD entitled From Hatchery to Home produced by the Australian Chicken Meat Federation Inc. Visit http://www.chicken.org.au/page.php?id=20&item=4 on the Australian Chicken Meat Federation website. You might want to download the National Farm Biosecurity Manual from this page. The objectives of biosecurity are outlined.

**Biosecurity**

Answer the following questions:

1. Outline a definition of biosecurity. ____________________________________________ ____________________________________________________________________________

2. What effect can diseases have on a poultry operation? ______________________________
__________________________________________________________________________

3. What do you think is meant by “managing risk”? _________________________________
__________________________________________________________________________

4. What do you think is meant by “risk assessment”? ________________________________
__________________________________________________________________________

5. Compare various answers from class members for questions 3 and 4. Write these responses on a whiteboard or similar. As a class, make a list of suggestions as to how a meat chicken farmer might go about controlling the major routes of disease transmission. There are many ideas that could come from watching the ‘From Hatchery to Home’ DVD. When compiling the list, consideration should be given to measures that could realistically be taken to protect against disease entering a flock because of; transfer of birds from farm to farm, wild birds or their droppings, domestic pets, insects, rodents, people and their clothing or shoes, vehicles and other equipment, transmission by air, birds drinking contaminated water.

6. Write an extended response (100 – 200 words) to the statement: ‘The most compelling reason for a livestock farmer to comply with all biosecurity regulations is the economic one. Disease can not only wipe out stock, but can also wipe out the considerable investment made into breeding and rearing.’

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Major Exercise

Take a close look at pages 9 to 15 of the National Farm Biosecurity Manual, as well as the documentation records in the appendices. Divide the class into three groups. Have each group take one of the following areas relating to a poultry farm:

• Facilities on the farm
• Personnel on the farm
• Operational standards

Using the resource material from the ACMF document and the ‘From Hatchery to Home’ DVD, each group is required to focus on their area and carry out the following tasks:

1. Make a list of:
   • routine procedures that should be incorporated into the everyday running of the poultry farm to minimise the risk of infection;
   • emergency procedures that should be implemented on a poultry farm, in addition to routine procedures, if there is a disease outbreak.

2. Present your lists to the rest of the class in a 10 – 15 minute oral presentation, supplemented by a handout or other visual aid(s) – eg, a PowerPoint presentation.
   You should also emphasise the importance of keeping accurate records, with reference to examples of documentation, such as those found in the appendices of the ACMF document.

3. Prepare a 5 minute question and answer quiz, or short test, to give to your audience immediately after the presentation. This will give your group a means of evaluating the effectiveness of your presentation.

4. Prepare a poster for display in the classroom that outlines the procedures for both routine and emergency situations.
In the Resource Kit you will find a DVD entitled *From Hatchery to Home* produced by the Australian Chicken Meat Federation Inc.

**The Use of Antibiotics**


1. What are antibiotics? ____________________________

2. In chicken meat production, two types of antibiotics are used – therapeutic agents and prophylactic agents. What is the difference between them? ____________________________
   ______________________________________
   ______________________________________

3. What is the industry’s position in relation to antibiotics? ____________________________
   ______________________________________
   ______________________________________

4. What does it mean when bacteria become resistant to antibiotics? ____________________________
   ______________________________________
   ______________________________________

5. What does JETACAR stand for? Why was it established? ____________________________
   ______________________________________
   ______________________________________

6. Which organisations are involved in implementing the strategies for the responsible use of antibiotics in animals? ______________________________________________________
   ______________________________________
   ______________________________________

7. Summarise the six guiding principles for the chicken meat industry to ensure that the development of antibiotic resistance is minimised. ______________________________________________________
   ______________________________________
   ______________________________________

8. To what does a withholding period refer? Why are withholding periods so important in chicken meat production? ____________________________
   ______________________________________
   ______________________________________

9. What is the chicken meat industry’s view on alternative methods of treatment to antibiotics? Why does it take this view? ____________________________
   ______________________________________
   ______________________________________

10. Are hormones used in chicken meat production in Australia? ____________________________
Avian Influenza


Cover some or all of the following aspects:

• What is Avian Influenza?
• How is it carried and passed on to birds?
• Is it the same disease as human influenza?
• Has Avian Influenza ever appeared in this country?
• Have people in Australia ever been affected by Avian Influenza?
• Which strain is the one commonly referred to as ‘bird flu’?
• Have we ever had this strain of Avian Influenza in Australia?
• In which parts of the world has this strain been identified since 2003, and what has been its impact on birds and humans in these parts of the world?
• Does this strain only affect chickens?
• Are wild birds affected?
• Can this strain ever be passed on to humans? If so, by what means?
• Has anyone around the world ever caught this strain from eating properly cooked chicken products?
• What evidence is there that Australia is well prepared to prevent any outbreak of Avian Influenza (bird flu)? What safeguards are in place?
• How can consumers be confident that the chicken meat they purchase is safe?

Present your findings in one of the following ways:

• a written assignment
• a radio or television documentary
• a PowerPoint demonstration
• a webpage, complete with links to other useful websites
• an information brochure for chicken meat consumers
In the Resource Kit you will find a DVD entitled From Hatchery to Home produced by the Australian Chicken Meat Federation Inc.

AFTER viewing the DVD write your responses to the following.

Animal Welfare

1. After viewing the ‘From Hatchery to Home’ DVD make a sketch of a shed used to house meat chickens on a commercial rearing farm. Show the typical dimensions of the shed and the location of feed silos. (You may need to view this section of the program again).

2. Make a list of the equipment/materials used for the following purposes in chicken sheds.
   • flooring ________________________________
   • ventilation and temperature control ________________________________
   • feed and water provision ________________________________

3. Visit www.chicken.org.au/page.php?id=44 on the ACMF website. Read through the information on this webpage and answer the following questions.
   a) What is meant by a Code of Practice? ________________________________
   b) In what ways do high standards of bird welfare, high levels of flock performance and economic performance go hand in hand? ________________________________
   c) There are three strong motives listed for industry to look after the birds in its care in a welfare-friendly manner. Write each of these in your own words.
      __________________________________________________________
      __________________________________________________________
      __________________________________________________________
4. Visit www.chicken.org.au and locate the section where conventional free range and organic production systems are compared. What is the difference between free range chickens, organic chickens and conventionally farmed commercial meat chickens?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

   a) The CSIRO published the Code of Practice, but which government body was responsible for compiling it? ________________________________
   b) Using the contents page as a reference, outline the areas covered by this Code of Practice. ________________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   c) In the section on ‘Housing’, two systems of housing for chicken meat production are defined – what are they? ________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   d) Read the section on ‘Equipment’. How often must feed and water equipment be checked? Why do you think there is the requirement for back-up systems for environmental control equipment? ________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   e) Read the section on ‘Ventilation’. What type of gas is described as an indicator of a build-up of noxious gases? What level of this gas (parts per million) in enclosed buildings requires immediate attention? ________________________________
   __________________________________________
   __________________________________________
   __________________________________________