# HANDBOOK ON ANIMAL DISEASE SURVEILLANCE

Ghana

Version 2

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# **Disclaimer**

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# Foreword

The "Handbook on Animal Disease Surveillance," also known as the "Yellow Book," is a testament to the commitment of Ghana's Veterinary Services Directorate (VSD) to advancing animal health systems. This handbook is designed to empower field staff, veterinary practitioners, and policymakers by offering a concise and well-illustrated guide on the identification and reporting of notifiable animal diseases. Its purpose extends beyond disease detection to fostering a One Health approach for zoonotic disease control, which bridges human, animal, and environmental health

Emerging and re-emerging zoonotic diseases pose significant challenges to global health security, food security, and economic stability. This revised and updated handbook reflects the collaborative efforts of the Animal Health Systems Strengthening (AHSS) project in Ghana, supported by the United Kingdom's Department for Environment, Food & Rural Affairs (DEFRA). Together, these stakeholders have worked to enhance the surveillance capabilities of Ghana's veterinary systems, enabling proactive responses to disease outbreaks.

The handbook stands as a vital resource for monitoring progress in controlling, eliminating, and eradicating animal diseases. It provides practical guidance for animal health practitioners—both public and private—ensuring their readiness to address diseases of economic and public health significance. By consolidating updated knowledge and strategies, the handbook supports a resilient health system that aligns with global health security goals.

I trust that this handbook will serve as a reliable companion for all those involved in animal health, helping to safeguard livelihoods, enhance food security, and promote public health across Ghana and beyond.

Dr. Emmanuel Allegye-Cudjoe Chief Veterinary Officer Republic of Ghana

# Preface

This HANDBOOK ON ANIMAL DISEASE SURVEILLANCE seeks to provide the field staff of Veterinary Services with a simple-worded and well-illustrated guide on identification and reporting of notifiable disease. The review of the guide is to strengthen the capacity Ghana's Veterinary Services Directorate (VSD) in early reaction to diseases outbreaks and discharge its mandate to carry out surveillance and disease reporting to stakeholders, both locally and internationally. It will also help adherence to surveillance strategies as well as help policy makers in making strategic decision and consolidate the One Health approach to zoonotic disease control.

The review of the original Animal Disease Surveillance Guide and expanding it into HANDBOOK ON ANIMAL DISEASE SURVEILLANCE popularly called "Yellow Book" was under the auspice of the Animal Health Systems Strengthening (AHSS) project in Ghana, part of a flagship Official Development Assistance (ODA) funded bilateral technical partnership between the United Kingdom's Department for Environment, Food & Rural Affairs (DEFRA) and countries in Africa, including Ghana.

The aim of this project is to work with responsible authorities in lower-middle income countries (LMICs) to build resilient health systems by strengthening capabilities in animal health systems, to better protect from, detect and respond to emerging diseases through a One Health, all hazards, systems strengthening approach: Improving livelihoods through more productive animals, enhancing global health security and working towards ending preventable deaths.

The Yellow Book plays an important role in the acquisition of knowledge on monitoring of progress in control, elimination, and eradication of animal diseases. Its main objective was to serve as a reference guide for disease surveillance for animal health practitioners. The guide helps in all regular activities aimed at ascertaining the health status of a given population with the aim of early detection and control of animal diseases of importance to public health, national economies, food security and trade.

That notwithstanding, the world has witnessed the emergence and re-emergence of various zoonotic diseases with significant impact on animal and human health. This coupled with the VSD's massive recruitments of new personnel and expansion of veterinary private practitioners in animal health management has resulted in disease control challenges. Thus, the critical need to review, update, and validate the current guide to encompass some emerging and re-emerging diseases and create room for knowledge enhancement.

As a result of the review and update of the guide, it was agreed at a stakeholder meeting to rename the guide "HANDBOOK ON ANIMAL DISEASE SURVEILLANCE".

It is hoped that the manual will be of help to the animal health practitioners across the country both in public and in private practice to control diseases of economic, food security, and public health importance and adherence to surveillance strategy of the Ghana's Veterinary Services Directorate.

William Kuma Adu | Animal Health National Lead |Animal Health System Strengthening Project, Accra.

# Acknowledgement

Many thanks to Dr. Nathaniel Yebuah, Former Head, Epidemiologic Unit of the Veterinary Services Directorate (VSD), of the Ministry of Food and Agriculture (MoFA), Ghana who compiled the original Animal Disease Surveillance Guide (Yellow Book), published in 2012, to guide the effective operation of the animal health practitioners in animal diseases management.

The Animal Health System Strengthening, UK Department for Environment, Food and Rural Affairs (DEFRA) for providing the financial and technical support without which this review would not see the light of day.

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The Chief Veterinary Officer and staff of the Veterinary Services reviewed and made very important points for the improvement of the manual.

Dr William Adu Kumah and Victus Kwabla Sabutey of the Animal Health System Strengthening for their hard work to review the "THE YELLOW BOOK".

The immense contribution by Prof. Kobina Turkson, University of Ghana, School of Veterinary Medicine, for evaluating and reviewing the mother book of this project "THE YELLOW BOOK", is acknowledged

A lot of online materials, manuals and documents were consulted during the compilation and preparation of this manual. We are not able to mention them individually, but we do appreciate them and are grateful.

# Background

The Veterinary Services Directorate at the Ministry of Food and Agriculture is charged with the responsibility of ensuring the welfare of animals in the country. The Directorate is also in charge of control of rabies and other diseases communicable to man as well as meat inspection. Technical officers trained for various activities can be found in all the district capitals, large towns and border towns. To promote efficiency and give choice to farmers, there is encouragement for the establishment of private veterinary practice in addition to the all-familiar government practice. Except for vaccines, the importation of veterinary drugs is in the hands of the private pharmaceutical companies spread across the country.

#### Vision

The vision of the VSD is to create an animal health system which provides quality animal health services to enhance livestock productivity and production.

#### Mission

To ensure a stable animal health situation through the provision of quality services by both the public and private sectors to enhance environmentally sustainable livestock production and contribute to the complete physical, mental and social well-being of humans through an understanding and application of veterinary medical science.

# **Objectives**

To accomplish its mission the Veterinary Services Directorate pursues the following objectives:

- Provide animal health services for the national livestock to further the expansion of the livestock industry in Ghana.
- Protect public health by controlling animal diseases communicable to human beings and to alleviate suffering among animals.
- Protect the health and safety of pet and zoological animals.

# Activities

To achieve its objectives the Veterinary Services Directorate created specialized units through which it carries its disease control activities. These are:

#### • Epidemiology Unit

This unit studies the dynamics of health/ill-health processes in the livestock and poultry industry. It investigates causes of diseases and their spread in space and time. The activities of this unit are aimed at problem solving and decision or policy making at livestock and poultry population level.

#### • Tsetse and Trypanosomosis Unit

Responsible for the control of tsetse flies and trypanosomosis throughout the country. Tsetse and Trypanosomosis Control Unit (TTCU), Ghana, mandate is to reduce the burden of Tsetse transmitted Animal Trypanosomosis towards alleviation of rural poverty and improvement living standards of farmers.

#### • Laboratory Services

The most important role of the veterinary diagnostic laboratories is the provision of diagnostic services as well as technical support for animal health extension staff and the rural farmer. These include the following:

- Differential diagnosis and sample submission to World Reference Laboratories.
- Serological surveillance and testing.
- Training in disease recognition and confirmation.
- Advice on sample collection, processing and submission.
- Training of Laboratory Technicians.
- Vaccine production:
  - I-2 Newcastle disease vaccine for rural poultry.
  - Anthrax spore vaccine.
  - Blackleg vaccine.
  - Haemorrhagic septicaemia vaccine

#### • Research- Problem Solving Research

Currently, the laboratory in collaboration with the Animal Research Institute is developing a vaccine to protect sheep and goats against Heartwater, a disease which causes high mortality amongst sheep and goats. Preliminary results are positive and very encouraging.

- Veterinary Public Health and Regulatory Unit
  - Ante-mortem and post-mortem meat inspection.
  - Control of zoonoses; organization of anti-rabies vaccination campaigns, control of tuberculosis and brucellosis, through regular testing of herds, control of anthrax through vaccination and public education.
  - Liaison role between the Ministry of Food and Agriculture and the Ministry of Health with regards to diseases common to man and animals.
  - Monitoring and enforcement of regulations on import and export of livestock and poultry products.
  - Public education on the impact of veterinary and other agricultural activities on human health.

### **Other Important Functions**

The Veterinary Services Directorate is also responsible for the following:

- Planning for emergencies and reporting to international bodies (WOAH, AU-IBAR etc.).
- General formulation of animal health development policies.
- Creation of the enabling environment for the private sector participation in the livestock industry.
- Liaises with and monitors the activities of private veterinary clinics to ensure they provide quality animal health care to their clients.

# **Scheduled/Notifiable Diseases**

To ensure the optimal operation of an epidemiological surveillance system a precise definition of the scope of observation is necessary. The diseases to be reported on are called scheduled/notifiable diseases. The choice of diseases depends on their severity, their potential for spread, mortality, morbidity, their economic impact, possibilities concerning preventive and curative intervention, regulations in general and notably national and international requirements.

### List of Scheduled Diseases in Ghana

CODE	NAME OF DISEASE	
1	Rinderpest	
2	Contagious Bovine Pleuropneumonia	
3	Anthrax	
4	Rabies	
5	Epizootic Lymphangitis	
6	Trypanosomosis	
7	Mange	
8	African Swine Fever	
9	Swine Erysipelas	
10	Foot And Mouth Disease	
11	Black Quarters	
12	Glanders	
13	Newcastle Disease	
14	Fowl Plague (Highly Pathogenic Avian Influenza)	
15	Fowl Typhoid	
16	Pullorum (Bacillary White Diarrhoea)	
17	Marek's Disease (Fowl Paralysis)	
18	Tuberculosis	
19	Fowl Pox	
20	Haemorrhagic Septicaemia	
21	Gumboro Disease (Infectious Bursal Disease)	
22	African Horse Sickness	
23	Lumpy Skin Disease	
24	Peste Des Petits Ruminants	
25	Brucellosis	
26	Bovine Spongyform Encephalopathy	
27	Dermatophilosis	
28	Contagious Pustular Dermatitis (ORF)	

# Important Emerging and Priority Diseases for Consideration

The following diseases have been recognized as having the potential to increase in frequency of occurrence and mortality among animals.

Number	NAME OF DISEASE
1	Ebola
2	Lassa Fever
3	Marburg
4	Rift Valley Fever
5	Monkey Pox
6	Capripox Virus
7	Covid-19
8	Low Pathogenic Avian Influenza
9	Infectious Bronchitis
10	Infectious Spleen And Kidney Necrosis Virus (Isknv) - Tilapia
11	Epizootic Ulcerative Syndrome (EUS) – Apanomyces invaans - Catfish
12	Tilapia Lake Virus (TiLV) - Tilapia

# **Major Diseases of Ghana**

# **RINDERPEST (SP / RP)**

# SURVEILLANCE PROTOCOL OF RINDERPEST (SP / RP)

Name Of Disease	Causal Agent	Policy Of VSD
RINDERPEST	Morbillivirus - paramyxovirus	<ul> <li>Ghana has attained the 'Rinderpest Disease-Free Status'.</li> <li>The policy of the country on Rinderpest is as follows: <ul> <li>Cessation of vaccinations against Rinderpest.</li> <li>Establishment of surveillance systems</li> <li>The use of only homologous PPR vaccine to vaccinate sheep and goats.</li> <li>Import Control</li> <li>Movement control inside the country</li> <li>All biologicals with RP virus must be destroyed or handed over to AU-PANVAC</li> </ul> </li> </ul>

**Objectives of surveillance:** Early alert and free country status.

	Clinical signs	
Clinical signs: Any morbidity affecting bovines with: Peracute: Fever	1. <b>Herd:</b> Bovine, Cattle, and Buffalo	
Congestion mucosal membranes		
<ul> <li>Acute:</li> <li>Fever</li> <li>Congestion mucosal membranes</li> <li>Ocular and nasal discharges</li> <li>Oral lesions beginning as pinpoint greyish areas of necrosis which coalesce. Lesions easily desquamate leaving shallow erosions.</li> <li>Conjunctivitis</li> <li>Stomatitis and hypersalivation</li> <li>Diarrhoea</li> </ul>	<ul> <li>Postmortem examinations:</li> <li>Extensive desquamation of necrotic epithelium from oral cavity to upper oesophagus</li> <li>Abomasum highly engorge or show grey discolouration</li> <li>Linear engorgement and blackening of the crests of the folds of the caecum, colon and rectum</li> <li>Generalised congestion.</li> </ul>	

#### Legitimate suspicion

Any disease affecting bovines and causing an ocular and nasal discharge; and presenting one of the following signs (fever, oral erosions, opacity of the cornea, diarrhoea and death) must make you consider Rinderpest.

#### What to do in case of suspicion

- Carry out sampling as indicated below
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples on live animals

Sampling	Conservation
Serum	Place a tube under cold chain

#### Samples on dead animals:

Sampling	Conservation
Lymph nodes	Put the lymph nodes in a sampling pot. Place it in the freezer.

# **Rinderpest Pictures**



# The following pics are taken from Wikimedia:













# **CONTAGIOUS BOVINE PLEURO PNEUMONIA (SP / CBPP)**

#### SURVEILLANCE PROTOCOL OF CONTAGIOUS BOVINE PLEURO PNEUMONIA (SP / CBPP)

		The policy on CBPP is as follows:
CONTAGIOUS BOVINE PLEUROPNEUMONIA	Mycoplasma mycoides subspecies mycoides	<ul> <li>Use of T1 44 vaccine for the control of CBPP</li> <li>Pen-side and cELISA tests to detect infected animals.</li> <li>CBPP is to be controlled by combination of removal and slaughter.</li> <li>Infected livestock should be removed</li> <li>A ban of movement of infected communal herds.</li> <li>Import control</li> </ul>

Clinical signs			
<ul> <li>Adults:</li> <li>Acute – pyrexia, respiratory signs including dyspnoea, nasal discharge, cough, dilated nostrils and open mouth breathing.</li> <li>Chronic – can become 'silent carrier'</li> <li>Calves:</li> </ul>	<b>Herd:</b> Cattle and Water Buffalo		
• Arthritis	<ul> <li>Postmortem examinations:</li> <li>Typically marbling of the lung in which the interlobular septa enlarge, and lung lobules undergo consolidation</li> <li>Pleural effusion</li> <li>Fibrous capsule surrounding a necrotic centre, 'sequester'</li> <li>Lung covered with fibrin</li> <li>Pulmonary adhesions .</li> </ul>		

#### Legitimate suspicion at the level of the herd

Sick animals at least 2 of the clinical signs listed above Dead animals at least 2 of the lesions listed above

#### What to do in case of suspicion:

- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples to carry out on affected live animals:

Sampling	Conservation	
Serum (red top)	Concerve under cold chain (+ 4°C)	
-Nasal swab		

#### Samples to carry out on dead animals:

Sampling	Conservation	
Pleural liquid on blotting paper	Place a tube under cold chain	
Pieces of affected lung	Quickly place the conditioning pots	
Bronchial Lymph nodes	under cold chain	



# **ANTHRAX**

#### Anthrax is Zoonotic

#### SURVEILLANCE PROTOCOL OF ANTHRAX

		The policy on Anthrax is as follows:
ANTHRAX	Bacillus anthracis	<ul> <li>Annual vaccination in endemic areas.</li> <li>In times of outbreaks, Ring vaccinations must be conducted.</li> <li>Treatment of in-contacts with appropriate antibiotics.</li> <li>Burn the carcass and/or bury 6ft with lime (burying must be complete).</li> <li>Disposal of spore-vaccine bottles through burning or burying.</li> <li>Exporters require veterinary certification for hides, skins and hairs (from ruminants, equines and pigs)</li> <li>Import control</li> </ul>

The suspected case of **Anthrax** is established on the presence of the following: Sudden death plus one of the following- legs not stiff (absence of rigor mortis), heavy bleeding from the nose and the mouth especially and from other natural orifices, subcutaneous swellings, rapid bloating, dark non-clotting blood.

Clinical signs		
High fever. Sudden death.	Herd: All herbivores and humans	
Bloody discharge from natural orifices (nasal, anus, vagina, ear.)	<ul><li>Postmortem examination</li><li>Black and unclotted blood</li></ul>	
Oedema of the genitals, lower abdomen and neck	<ul> <li>Enlarged spleen (black colour).</li> <li>Concratized congestion of the</li> </ul>	
Colic in horses	• Generalized congestion of the organs and tissues	

#### What to do in case of suspicion:

- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples on live animals:

Sampling	Conservation
Collect a blood sample (one to two drops) by nicking a superficial vein (e.g. ear vein) with a disposable needle or scalpel blade.	Conserve under cold chain (+ 4°C)

#### Samples on dead animals:

Sampling	Conservation	
Piece (2 cm2) of skin	Conserve under cold chain (+ 4°C)	
Sterile blood in heparin tube		



Cattle: Blood-stained discharge from the anus

Blood-stained discharge from the nostrils, mouth, and anus.



# RABIES

#### Rabies is Zoonotic

# SURVEILLANCE PROTOCOL OF RABIES

Rabies		The policy on Rabies is as follows:
Rabies is a viral disease. Rabies is a disease of livestock. The virus is particularly present in the saliva and brain of infected animals, most commonly dogs, and is transmitted by a bite. Livestock are affected by rabies mostly through bites of rabid dogs or wildlife carnivore species. Bats also represent an important reservoir in certain regions.	Rhabdovirus	<ul> <li>Annual Vaccination of dogs, cats and companion animals.</li> <li>Law requires that all dogs should be vaccinated else impounded and destroyed.</li> <li>Import control</li> </ul>

# Elements of suspicion:

Clinical signs	
Early behavioral changes (prodromal):	
<ul> <li>Irritable, anxious, sensitive to noise and light</li> </ul>	
<ul> <li>Animal may bite at the wound site or actively</li> </ul>	
seek attention from owner	
Wild animals may appear friendly and lose	Herd:
their fear of people	affects the central nervous
Excitement (furious rabies):	foxes etc.), including humans.
<ul> <li>Excitement, aggressive, attacks</li> </ul>	
animals/people/inanimate objects	
<ul> <li>Excess salivation, vocalisation, tremors,</li> </ul>	
seizures, incoordination	
Paralytic (dumb rabies):	
<ul> <li>Progressive hind limb paralysis, ataxia,</li> </ul>	
dysphagia, facial paralysis, drooling, difficulty	Postmortem Examination:
swallowing, lower jaw may drop (mouth hang	INO GIUSS CHANGES
open), dyspnoea, coma & death	

#### What to do in case of suspicion:

- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (head preserved and transported at + 4°C)
- Accompany with samples forms to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples on live animals:

Sampling	Conservation
Diagnosis not possible from live animal.	Not applicable

#### Samples from dead animals:

Protective personal equipment (such as gloves, face shield, mask) should always be worn and precautions must be taken to prevent aerosols.

Sampling	Conservation
Collection of brain samples	Head preserved and transported at + 4°C



# **EPIZOOTIC LYMPHANGITIS (EQUINE HISTOPLASMOSIS)**

#### Epizootic lymphangitis is potentially zoonotic. Sporadic infection in humans.

## SURVEILLANCE PROTOCOL FOR EPIZOOTIC LYMPHANGITIS (EQUINE HISTOPLASMOSIS)

		The policy on Epizootic Lymphangitis is as follows:
EPIZOOTIC LYMPHANGITIS (EQUINE HISTOPLASMOSIS)	Histoplasma capsulatum var. farciminosum	<ul> <li>infected and in-contact animals are to be destroyed.</li> <li>The buildings and all grooming kits, equipment, nosebags, water troughs and mangers should be disinfected and bedding and debris destroyed.</li> <li>Import control</li> </ul>

Clinical signs	
Most commonly a disease of the skin and lymphatic system, but ocular disease and respiratory disease can also occur.	
Skin lesions can occur anywhere but are mostly over the neck, chest and limbs. Pyogranulomatous nodules form in the dermis and enlarge before bursting to become ulcers with a thick bloody exudate. Lesions are variably painful. Infection spreads along lymphatic vessels, which become thickened, and regional lymph nodes are enlarged.	<b>Herd:</b> It is a contagious, chronic disease of horses, mules and donkeys.
Ocular form characterized by an ulcerative keratoconjunctivitis	
Respiratory form is rare, but has yellow, ulcerating papules and nodules on the nasal mucosa.	Lesions:

#### What to do in case of suspicion:

- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

Sampling	Conservation
Impression smears of purulent material stained directly with Gram's, Giemsa or Periodic Acid–Schiff reagent and examined for the typical yeast form.	
<ul> <li>Skin hypersensitivity test:</li> <li>inoculate intradermally in the neck with 0.1 ml skin test antigen containing 0.2 mg/ml protein.</li> </ul>	



Equid: skin eruption with discharge of a thick yellow pus © Dr. Peter Timoney/U. Wernery



Equid: nodules appear over all four limbs and extensive lesions appear on the face © Dr. Peter Timoney/C. Scantlebury

# **TRYPANOSOMOSIS**

#### Some species of Trypanosomosi can be zoonotic.

# SURVEILLANCE PROTOCOL OF TRYPANOSOMOSIS

TRYPANOSOMOSIS		Control needs a concerted action by all neighboring West African countries. Mechanisms to aid control include:
caused by trypanosomes, a protozoan parasite in the family Trypanosomatidae, which are mainly transmitted by tsetse flies but also mechanically by other biting flies	Mainly caused by Trypanosoma congolense, T. vivax and to a lesser extent T.brucei brucei But other species must also be considered.	<ul> <li>Insecticide mass spraying, Setting of traps</li> <li>Control and eradication of tsetse vector</li> <li>Sterile male technique</li> <li>Pheromone baited tsetse traps</li> <li>Introduction and development (selective cross breeding) of trypanotolerant animals</li> <li>The use of prophylactic drugs in susceptible cattle.</li> <li>Treatment of clinical cases as they occur.</li> </ul>

#### Legal Framework Rationale and Purpose:

Trypanosomosis is a notifiable disease and comes under the legal framework of international regulations (Disease of Animal Act 1961 WOAH Terrestrial Animal Code).

Clinical signs		
Intermittent fever Anaemia (Nonregenerative) Oedema Lacrimation	Herd: African trypanosomosis is particularly important in cattle and other hosts such as horses, donkeys, camels, goats, sheep, pigs, dogs and even humans may be affected.	
Enlarged lymph nodes	Postmortem Examination:	
Abortion and decreased fertility Loss of appetite, body condition and productivity	Acute cases: <ul> <li>Enlarged lymph nodes, liver, and spleen</li> <li>Petechial haemorrhages</li> <li>Effusions</li> </ul>	
Early death in acute form	Chronic:  Emaciation	
Emaciation with nervous or digestive signs and eventually death in chronic form	<ul> <li>Lymphoid organs are normally no longer enlarged but severe myocarditis is a common finding</li> </ul>	
Loss of hair at the end of tail in endemic areas.		

#### What to do in case of suspicion:

#### Suspected case is defined as:

- Any animal presenting with emaciation, lacrimation plus any of the following: enlarged lymph nodes, anaemia, loss of hair at the end of tail, and abortion
- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

Sampling	Conservation
<b>Direct parasite detection:</b> examination of wet, thick or thin films of fresh blood, usually obtained from the ear vein, jugular vein or the tail.	Conserve under cold chain (+ 4°C)
<b>Serology:</b> Indirect fluorescent antibody test (IFAT) and the trypanosomal antibody-detection ELISA	



Cattle: severe emaciation ©ILRI

# MANGE

# SURVEILLANCE PROTOCOL OF MANGE

MANGE		The policy on Mange is as follows:
is a contagious skin disease, characterised by crusty, pruritic dermatitis and hair/feather loss, and caused by a variety of parasitic mites burrowing in or living on the skin	Sarcoptes spp.	<ul> <li>Bathing, dipping, spraying and application of acaricide on the animals</li> <li>Treatment of animals with Acaricide</li> </ul>

#### Elements of suspicion:

Clinical signs	
lesions are typically located on the neck, head and tail base but can be widespread. Infections usually are mild but can result in severe disease.	<b>Herd:</b> domestic animals. Most
Can cause intense itching and skin damage, secondary skin infections	severe in goats.

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples on live animals:

Sampling	Conservation
Skin scrape taken at edge of scaly area. Scrae should be made enough to cause bleeding of the skin?	Place in sealed container







# **AFRICAN SWINE FEVER**

# SURVEILLANCE PROTOCOL OF AFRICAN SWINE FEVER

		The policy on African Swine Fever is
		as follows:
AFRICAN SWINE FEVER African swine fever (ASF) is a highly contagious viral disease of domestic and wild pigs, whose mortality rate can reach 100%	Asfarviridae Family; genus Asfivirus. An arbovirus	<ul> <li>Avoid contact between pigs, wild suids and soft tick vectors or their habitats (Africa) – i.e. prevent pigs from wandering</li> <li>Avoid feeding untreated swill or kitchen scraps containing meat to pigs</li> <li>Ensure farms and pork supply chain practice good biosecurity</li> <li>Removal of source of infection by modified stamping out.</li> <li>Ban on sales of pigs, pork and pig products.</li> <li>Medical prophylaxis.</li> <li>No treatment</li> <li>No vaccine to date</li> </ul>

#### **Clinical signs**

#### Early:

Fever (up to 42°C), lethargy, inappetence In severe cases can have sudden death with few signs prior (peracute)

#### Later:

- Reddening of the skin (visible only on pale skinned pigs), with patches appearing on the tips of ears, tail, distal extremities, and ventral aspects of chest and abdomen
- Vomiting, diarrhoea (sometimes bloody)
- Increased pulse and respiratory rate
  - Swollen eyes and eye discharge
  - Abortion may occur in pregnant sow
- Cyanosis and incoordination within 24–48 hours before death
- Death within 6–13 days, or up to 20 days in acute form or 15-45 days in subacute form.

#### Chronic form:

- Weight loss
- Necrosis of skin, chronic skin ulcers
- Arthritis, swelling over joints
- Respiratory signs
- Irregular peaks of temperature
- Low mortality
- Small number of survivors become lifelong carriers

#### Host:

Mortality can be as high as 100% in domestic swine.

All varieties of Sus scrofa (domestic and wild) are susceptible

African wild suid species: warthogs (Phacochoerus spp.), bush pigs (Potamochoerus spp.), giant forest hogs (Hylochoerus meinertzhageni) are usually inapparently infected and act as reservoir hosts of ASFV

Ticks of the genus Ornithodoros are the only known natural arthropod hosts of the virus and act as reservoirs and biological vectors

#### Postmorten examination:

Acute form (not all lesions seen):

- Pronounced haemorrhages in the gastrohepatic and renal lymph nodes
- Petechial haemorrhages of the renal cortex, also in medulla and pelvis of kidneys
- Congestive splenomegaly
- Oedematous areas of cyanosis in hairless parts
- Cutaneous ecchymoses on the legs and abdomen
- Excess of pleural, pericardial and/or peritoneal fluid
- Petechiae in the mucous membranes of the larynx and bladder, and on visceral surfaces of Organs
- Oedema in the mesenteric structures of the colon and adjacent to the gall bladder.

#### Chronic form:

Focal caseous necrosis and mineralisation of the lungs Lymph node enlargement

#### What to do in suspected case:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

Sampling	Conservation
Agent identification: • samples should be submitted, especially: • blood collected during the early febrile stage in EDTA (0.5%) o • spleen, lymph nodes, tonsil, lungs, kidney and bone marrow • Serological tests Serum collected within 8–21 days after infection in convalescent animals	keep at 4°C
Blood collected during the early febrile stage in EDTA (0.5%)	Conserve under cold chain (+ 4°C)
Spleen, lymph nodes (retropharyngeal and submandibular), tonsil, lungs, kidney <ul> <li>Bone marrow</li> </ul>	Spleen, lymph nodes (retropharyngeal and submandibular), tonsil, lungs, kidney • Bone marrow

The following are all sourced from Defra Flickr album African swine fever: clinical signs | Flickr











# **SWINE ERYSIPELAS**

#### SURVEILLANCE PROTOCOL OF SWINE ERYSIPELAS

SWINE ERYSIPELAS		The policy on Swine Erysipelas is
African swine fever (ASF)		as follows:
is a highly contagious	Erysipelothrix	Treatment with appropriate
viral disease of domestic	insidiosa (rhusiopathiae)	<ul> <li>broad-spectrum antibiotics.</li> <li>Vaccination of in-contacts.</li> <li>Movement control within the</li> </ul>
and wild pigs, whose		
mortality rate can reach		country.
100%		

#### Elements of suspicion:

Clinical signs	
<ul> <li>Acute: <ul> <li>Sudden death</li> <li>Fever</li> <li>Reddened or cyantotic skin, especially around ears, snout, jowls, throat and ventral abdomen</li> <li>Raised and red purple areas of skin, often with diamond shat (more visible on pale skinned pigs), which can coalesce.</li> <li>Stiffness or reluctance to rise due to arthritis</li> <li>Abortion</li> </ul> </li> </ul>	<ul> <li>Hosts: Pigs</li> <li>Postmortem examination:</li> <li>Acute form: <ul> <li>If sudden death may not have gross lesions</li> <li>Congested lymph nodes with subcapsular hemorrhage</li> <li>Petechial hemorrhages kidneys, epicardium and endocardium</li> <li>Liver swollen</li> <li>Lungs congested and oedematous</li> <li>Enlarged spleen</li> </ul> </li> </ul>
<ul> <li>Enlarged joints</li> <li>Exertion or sudden death due to heart lesions</li> </ul>	<ul><li>Chronic form:</li><li>Arthritis</li><li>Vegetative valvular endocarditis</li></ul>

#### What to do in case of suspicion:

- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs).
- Fill and send immediately the VF1 forms.
- Send samples (with samples forms) to the nearest Laboratory.
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

# Samples on live animals:

Sampling	Conservation
Serum	Conserve under cold chain (+ 4°C)

#### Samples on dead animals:

Sampling	Conservation
Kidney, spleen, lymph nodes, vegetative lesions or other tissue	Conserve under cold chain (+ 4°C)

The following image is sourced from Wikimedia:







# FOOT AND MOUTH DISEASE

# SURVEILLANCE PROTOCOL OF FOOT AND MOUTH DISEASE (SP / FMD)

		The policy on Foot and Mouth
		Disease is as follows:
		Sanitary prophylaxis
		Protection of free zones by
		border control of the movements
		of animals and their products and
FOOT AND MOUTH		by surveillance.
DISEASE		Application of OIE recommended
Foot and mouth disease		procedures for inactivation of
(FMD) is a severe, highly		FMDV in animal-derived
contagious viral disease of		products.
livestock that has a	Aphthovirus	Quarantine measures • Slaughter
significant economic		of infected, recovered, and FMD-
impact. The disease		susceptible contact animals
affects cattle, swine,		Cleaning and disinfection of
sheep, goats and other		premises and all infected
cloven-hoofed ruminants.		material, such as implements,
		cars, and clothes
		Disposal of carcasses, bedding,
		and contaminated animal
		products in the infected
		Medical prophylaxis;
		Inactivated vaccines

#### Suspicion at the level of the herd

Sick animals at least 2 of the symptoms listed above

Dead animals at least 2 of the lesions listed above

#### What to do in case of suspicion:

Fill out the "OUTBREAKS OF SCHEDULED DISEASES REPORT" VF1

- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.
## Samples to carry out on live animals:

	Sampling	Conservation
•	Epithelium from an unruptured or recently ruptured vesicle +/- vesicular fluid Where collecting epithelial samples is not possible, blood and/or oesophageal–pharyngeal fluid samples taken by probang cup Throat swabs from pigs provide an alternative source of virus	Epithelial samples should be placed in a transport medium which maintains a pH of 7.2–7.6 and kept cool

## Samples on dead animals:

Sampling	Conservation
<ul> <li>Piece of tissue containing vesicles</li> <li>Myocardial tissue or blood can be submitted from fatal cases</li> </ul>	Quickly place the conditioning pots under cold chain











Pig: oral lesions ©USDA-2002/Foreign Animal Diseases Training Set/USDA-Animal and Plant Health Inspection Service (APHIS)

## **BLACK QUARTERS (Blackleg)**

## SURVEILLANCE PROTOCOL OF BLACK QUARTERS

		The policy on Black Quarters Disease is as follows:
BLACK QUARTERS (Blackleg)	Clostridium chauvoei	<ul> <li>Annual vaccination in endemic areas.</li> <li>In the face of an outbreak, animals are quarantined.</li> <li>Treatment with appropriate broadspectrum antibiotics. If all signs subside, vaccinate and release animals</li> </ul>

#### Elements of the suspicion:

Clinical signs	
<ul> <li>Depression, fever,</li> <li>Painful swelling +/- crepitus commonly at level of chest, neck, shoulder, thigh or croup</li> </ul>	<ul> <li>Herd:</li> <li>Non-contagious but highly fatal, with nearly 100% death if the animal is affected.</li> </ul>
<ul> <li>Lameness linked to the swelling.</li> <li>Death within 2 to 3 days but can appear as sudden death</li> </ul>	<ul> <li>Postmortem examination:</li> <li>Generalized congestion</li> <li>Affected skeletal muscle is dark red and can contain gas bubbles.</li> </ul>

#### Legitimate suspicion at the level of the herd

Sick animals at least 2 of the symptoms listed above

Dead animals at least 2 of the lesions listed above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

## Samples to carry out on sick animals:

Sampling	Conservation
Aspirate liquid from swollen area using a syringe. Then to stop the syringe to avoid the contact of the liquid with the air	Conserve under cold chain (+ 4°C).

## Samples to carry out on dead animals:

Sampling	Conservation
Piece of tissue containing vesicles	Conserve under cold chain (+ 4°C).

## FOLLOWING IMAGES SOURCED FROM WIKIMEDIA BLACKLEG (DISEASE) - WIKIPEDIA





## **GLANDERS**

## **GLANDERS IS ZOONOTIC**

## SURVEILLANCE PROTOCOL OF GLANDERS

GLANDERS		The policy on Glanders is as follows:
An infectious and life-		<ul> <li>If an outbreak occurs, all in-contact</li> </ul>
threatening disease that		equines must be quarantined and
mainly affects horses,		Affected animals to be destroyed
donkeys or mules	<i>Burkholderia</i> • The buildings and all groom	The buildings and all grooming kits,
caused by the	mallei	equipment, disinfected and bedding
bacterium Burkholderia		<ul> <li>Import control</li> </ul>
mallei. Glanders can be		<ul> <li>An international veterinary certificate is</li> </ul>
transmitted to humans		required
(zoonotic).		

## Elements of the suspicion:

Clinical signs	
Two forms of disease are recognised: the acute respiratory form (Glanders) and a chronic skin form (Farcy). Clinical signs of the acute respiratory form include mucopurulent nasal discharge, ulcerations of the nasal	<ul> <li>Herd:</li> <li>Mainly horses, donkeys and mules.</li> <li>Can be transmitted to humans.Also demonstrated in camels, felines, bears, wolves, dogs, guinea pigs and hamsters.</li> <li>Infection is generally fatal.</li> </ul>
mucosa, pyrexia, cough, tachypnoea and malaise. Case fatality of the acute form is high. The chronic skin form is characterised by cutaneous nodules, particularly over the limbs and ventral trunk, which develop into abscesses and ulcers capped with a crust. Chronic infection leads to wastage.	<ul> <li>Postmortem examination:</li> <li>Inflammatory nodules and ulcers in the nasal passages and give rise to a sticky yellow discharge.</li> <li>Stellate scarring follows upon healing of the ulcers</li> <li>Nodular abscesses in the lungs.</li> <li>Nodules in the liver and spleen, leading to wasting and death</li> </ul>
Horses may also be subclinically infected or recover from either form to become chronically, subclinically infected.	<ul> <li>to wasting and death.</li> <li>In cutaneous form, lymph vessels are enlarged, and nodular abscesses form along their course.</li> </ul>

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report

#### Samples to carry out on sick animals:

Sampling	Conservation	
EDTA and clotted blood.	Concernation and an and the size (+, 4°C)	
Swab from nasal/skin discharge.	Conserve under cold chain (+ 4 C)	

#### Samples to carry out on dead animals:

Sampling	Conservation
Swab from affected nodule/abscess?	Quickly place the conditioning pots
Affected tissue from lymph, lung, skin, liver or spleen?	under cold chain



Image from Wikimedia Commons...

## **NEWCASTLE DISEASE**

## SURVEILLANCE PROTOCOL OF NEWCASTLE DISEASE

		The policy on Newcastle disease is as follows:
NEWCASTLE DISEASE	Paramyxovirus type 1 (APMV-1), also known as Newcastle disease virus (NDV)	<ul> <li>Vaccination of village poultry using thermostable I-2 vaccine.</li> <li>Farmers are to follow to the latter the current vaccination regimes with HB1, Lasota and Newcavac vaccines</li> <li>Improve biosecurity systems/ measures.</li> <li>Where possible slaughter affected birds.</li> <li>Import control</li> </ul>

#### Elements of suspicion:

Clinical signs	
Sudden death	Flock: Affects many species of birds both domestic and wild:
<ul> <li>Respiratory: Difficulty in breathing, coughing, sneezing, nasal discharge</li> </ul>	<ul> <li>Chickens are highly susceptible.</li> <li>Turkeys do not tend to develop severe signs.</li> <li>Game birds and parrots vary in susceptibility.</li> <li>Morbidity and mortality according to the strain, the immunity level, species affected and the management conditions.</li> </ul>
Neurological: Twisted	Variable but may reach 50 - 100% in a flock.  Postmortem examination:
neck, paralysis, tremors,	
circling, spasms, lack of	<ul> <li>Swelling of periorbital area or entire head</li> </ul>
movement / coordination	Generalized congestion of organs and tissues
Oedema of the head	<ul><li>Congestion, haemorrhagic tracheal mucosa</li><li>Oedema, haemorrhages or degeneration of</li></ul>
<ul> <li>Cyanosis (combs, wattles)</li> </ul>	<ul> <li>the ovaries</li> <li>Haemorrhagic petechiae on the level of proventriculum</li> </ul>
Diarrhoea	<ul> <li>Oedema, haemorrhages, necrosis or ulcerations of the respiratory/digestive</li> </ul>
<ul> <li>Partial or complete egg drop. Eggs may be abnormal shape, colour or surface.</li> </ul>	<ul> <li>lymphoid tissue (ulceration/necrosis of Peyer's patches is more suggestive of ND than AI)</li> <li>Spleen can appear enlarged, friable and dark red or mottled</li> <li>Pancreatic necrosis</li> </ul>

## Legitimate suspicion at the level of the flock

Sudden and high mortality associated with one of the signs or lesions mentioned above

### What to do in case of suspicion:

In each flock:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.
- Stamping out infected farms

**NB**: Fill out a VF1 form for each affected farm and carry out the samples in each affected farm.

#### Samples to collect from sick birds:

Sampling	Conservation
Serum (10-20 samples)	Conserve under cold chain (+ 4°C) if
Tracheal and cloacal swabs (10-20 samples)	24-48 hours.
Fresh faecal material	If more, conserve at -20°C

#### Samples to collect from dead birds:

Sampling	Conservation
Infested bird should be sent to the lab	Under cold chain (+ 4°C)

#### Following images are from Wikimedia:







# FOWL PLAGUE (HIGHLY PATHOGENIC AVIAN INFLUENZA)

### **HPAI IS ZOONOTIC**

### SURVEILLANCE PROTOCOL OF FOWL PLAGUE (HIGHLY PATHOGENIC AVIAN INFLUENZA)

FOWL PLAGUE		The policy on Avian Influenza is as follows:
(HIGHLY PATHOGENIC AVIAN INFLUENZA) Zoonotic	<b>Family</b> Orthomyxoviridae, Genus Influenza Type A Subtypes H5/H7	<ul> <li>Ban on importation of poultry and poultry products from areas known to have outbreak of the disease.</li> <li>Establishment of surveillance systems on migratory birds, waterfowls and live poultry market birds.</li> <li>Improve on-farm biosecurity</li> <li>Import Control</li> <li>Stamping out infected farms</li> </ul>

## Elements of suspicion:

Clinical signs	
<ul> <li>Sudden death</li> <li>Respiratory: Difficulty in breathing, coughing, sneezing, nasal discharge</li> <li>Neurological: Twisted neck, wing/leg</li> </ul>	<ul> <li>Flock:</li> <li>Wild and domestic bird species</li> <li>Transmission to mammals e.g. pigs, humans and cattle, can occur.</li> <li>Morbidity and mortality according to the strain, the immunity level, species affected and the management conditions.</li> <li>Can reach 50 - 100% in a flock.</li> <li>LPAI viruses usually cause asymptomatic infections, mild respiratory disease and egg drop.</li> <li>HPAI tend to cause severe disease and high mortality. Although some species may show</li> </ul>
paresis, paralysis, tremors, circling,	Postmortem examination:
<ul> <li>spasms, lack of movement / coordination</li> <li>Oedema of the head</li> <li>Cyanosis (combs, wattles</li> </ul>	<ul> <li>Oedema of the interstitial or peritracheal tissue of the neck</li> <li>Important mucous exudates on the level of the trachea</li> <li>Generalized congestion of organs and tissues</li> <li>Congestion, haemorrhagic tracheal mucosa</li> <li>Oedema, haemorrhages or degeneration of the ovaries</li> <li>Spleen can appear enlarged, friable and dark red or mottled</li> <li>Pancreatic necrosis</li> </ul>

## Legitimate suspicion at the level of the flock

Sudden and high mortality associated to one of the signs of lesions mentioned above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples to collect from sick birds:

Sampling	Conservation
Serum (10-20 samples)	
Tracheal and cloacal swabs (10-20 samples)	Under cold chain (+ 4°C)
Fresh faecal material	

#### Samples to collect from dead birds:

Sampling	Conservation
Infested bird should be sent to the lab.	
Material carefully packaged to avoid disease	
spread.	

### Following images are from Wikimedia





## **FOWL TYPHOID**

## SURVEILLANCE PROTOCOL OF FOWL TYPHOID

FOWL TYPHOID	Salmanalla gallinarium	The policy on Fowl Typhoid is as follows:
Saimonena gaimarum	Import control	

#### Elements of suspicion:

Clinical signs	
Acute septicaemic condition which mainly affects mature birds:	<ul><li>Flock</li><li>Host adapted to avian species.</li></ul>
<ul><li>Anaemia</li><li>Depression</li></ul>	<ul> <li>High morbidity and acute or subacute mortality.</li> </ul>
<ul><li>Laboured breathing</li><li>Diarrhoea</li></ul>	Postmortem examination:
<ul> <li>Weakness and death</li> <li>Increased mortality and poor quality in chicks hatched from infected eggs</li> </ul>	<ul> <li>Generalised signs of septicaemia</li> <li>Liver enlarged, dark and friable (can have distinctive coppery bronze sheen after exposure to air)</li> <li>Bone marrow often dark</li> </ul>

### Legitimate suspicion at the level of the flock

Sudden and high mortality associated to one of the signs of lesions mentioned above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples to collect from sick birds:

Sampling	Conservation
<ul> <li>Serum (10-20 samples)</li> </ul>	
<ul> <li>Tracheal and cloacal swabs (10-20 samples)</li> </ul>	Under cold chain (+ 4°C)
Fresh faecal material	

#### Samples to collect from dead birds:

Sampling	Conservation
Infested bird should be sent to the lab	Under cold chain (+ 4°C)

## PULLORUM (BACILLARY WHITE DIARRHOEA)

## SURVEILLANCE PROTOCOL OF PULLORUM (BACILLARY WHITE DIARRHOEA)

		The policy on Pullorum is as follows:
		- Subject all hirds from the various
(BACILLARY	Salmonella	<ul> <li>Subject all birds from the various hatcheries to the Pullorum test with the</li> </ul>
WHITE	nullorum	view to preventing the transmission and
DIARRHOEA)	panorani	<ul> <li>spread of the disease in the country.</li> <li>Import control on eggs and day-old- chicks.</li> </ul>

**Objectives of the surveillance:** Early detection, know the prevalence and the geographic distribution.

#### Elements of suspicion:

Clinical signs	
Mostly septicaemic disease of	Flock
young chickens. Although can	Host adapted to avian species.
also be associated with disease in	Lesions:
turkey poults.	<ul> <li>Newly hatched chicks can have peritonitis with generalised congestion of tissues and an inflamed unabsorbed</li> </ul>
<ul> <li>Highest mortality in birds 2-3</li> </ul>	yolk sac.
weeks of age.	<ul> <li>Longer standing infections commonly lead to typhitis with development of</li> </ul>
Older birds can be mild or	necrotic caecal casts and small
inapparent.	necrotic foci in the liver, lungs and other viscera. Small lesions in liver and
<ul> <li>Reduced egg production and</li> </ul>	spleen may show a 'white spot'
hatchability.	<ul> <li>appearance.</li> <li>Adults can have misshapen, discoloured and/or shrunken ovaries.</li> </ul>

### Legitimate suspicion at the level of the flock

Sudden and high mortality associated to one of the signs of lesions mentioned above

#### What to do in case of suspicion:

In each flock:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

## Samples to collect from sick birds:

Sampling	Conservation
Serum	
<ul> <li>Tracheal and cloacal swabs</li> </ul>	Under cold chain (+ 4°C)
<ul> <li>Fresh faecal material</li> </ul>	

## Samples to collect from dead birds:

Sampling	Conservation
Infested bird should be sent to the lab	Under cold chain (+ 4°C)



Sourced from Wikimedia Commons:

# MAREK'S DISEASE (FOWL PARALYSIS)

## SURVEILLANCE PROTOCOL OF MAREK'S DISEASE (FOWL PARALYSIS)

MAREK'S DISEASE (FOWL PARALYSIS)	Alphaherpesvirus, Marek's disease virus (MDV)	<ul> <li>The policy on Marek's Disease is as follows:</li> <li>Vaccination of day-old-chicks at the hatcheries.</li> <li>Import control for day-old-chicks and hatching eggs</li> </ul>
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#### Elements of suspicion:

Clinical signs	
<ul> <li>Signs can occur at any time, beginning from 3-4 weeks of age or older.</li> <li>Paralysis of the legs and wings</li> <li>Weight loss</li> <li>Laboured breathing</li> <li>Diarrhoea</li> </ul> Although can cause increased mortality in birds 1-2 weeks of age.	<ul> <li>Flock <ul> <li>Neurological form mortality rarely exceeds 10-15%, and can occur over weeks to many months.</li> <li>-Lymphoproliferative form disease incidence of 1-30% not uncommon and can be up to 70%. Mortality may increase rapidly over a few weeks and then cease or continue at steady or slowly falling rate for several months</li> </ul> </li> </ul>
	<ul> <li>Lesions:</li> <li>Neurological form: Enlargement of the sciatic, brachial and sometimes vagal nerves (can be others).</li> <li>Lymphoproliferative form: Multicentric lymphoma with involvement of the liver, gonads, spleen, kidneys, lungs, proventriculus and heart. Appearing as distinct white masses or ill-defined enlargement of the affected organ.</li> </ul>

### Legitimate suspicion at the level of the flock

Sudden and high mortality associated to one of the signs of lesions mentioned above

#### What to do in case of suspicion:

- Carry out sampling as indicated below.
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

## Samples to collect from sick birds:

Sampling	Conservation
Heparinised blood	Conserve under cold chain (+ 4°C)

## Samples to collect from dead birds:

Sampling	Conservation
Feather follicle epithelium, ovary and	Phosphate buffer saline (PBS) with antibiotics
kidney	and transported to the laboratory on ice.

### Sourced from Wikimedia:



# **BOVINE TUBERCULOSIS**

## Bovine Tuberculosis is zoonotic

## SURVEILLANCE PROTOCOL OF BOVINE TUBERCULOSIS

		The policy on Tuberculosis is as follows:
BOVINE		<ul> <li>Screening of peri-urban dairy cattle</li> </ul>
TUBERCULOSIS		using Tuberculin Test.
		<ul> <li>positive reactors to be removed from the kreat</li> </ul>
Bovine tuberculosis is a		<ul> <li>Cattle meant for breeding or rearing</li> </ul>
chronic bacterial		should be Tuberculin Test negative
disease of animals	Mycobacterium	<ul> <li>I otal condemnation of carcass if generalized form is detected at</li> </ul>
caused by members of	bovis	slaughter.
the Mycobacterium		<ul> <li>Partial condemnation of organs where lesions are localized.</li> </ul>
tuberculosis complex,		Trace-back source of infection
primarily by M. bovis. It		<ul> <li>Pasteurisation of milk for human consumption.</li> </ul>
is a major zoonotic		<ul> <li>Trace-forward channels of infection spread</li> </ul>
		<ul> <li>Import control</li> </ul>

## Elements of suspicion:

CI	inical signs	
•	weakness loss of appetite and weight fluctuating fever	Herd: Mainly cattle but can affect other domesticated animals such as sheep, goats, equine, pigs, dogs and cats. As well as numerous wildlife species such as wild boars, deer and antelopes
•	yspnoea and intermittent hacking ough igns of low-grade pneumonia iarrhoea nlarged, prominent lymph nodes.	<ul> <li>Postmortem examination:</li> <li>Almost an organ system might appear lesioned, but in animals where inhalation is the route of infection, tubercules are often observed in the lungs as well as cranio-thoracic lymph nodes.</li> <li>Presence of miliaries in nodes and caseous abscesses sometimes calcified on the lungs/spleen</li> <li>Enlarged lymph nodes</li> </ul>

#### What to do in case of suspicion:

- Make the weekly summary of slaughters in your slaughterhouses or slaughter slabs in the Slaughter-house / slab surveillance form.
- Any suspicion must be reported in the monthly slaughterhouse surveillance form
- In the event of suspicion take samples as indicated below;
- Fill the information of each sampled animal on the "Sampling Form"
- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### On the live animal

Sampling	Preservation
Tuberculin skin test (TST)	
Blood for Interferon-gamma release assay	

#### On the dead animal:

Sampling	Conservation
<ul> <li>Piece of affected lung, spleen or other tissue with abscessation or millaries.</li> </ul>	Quickly place under cold chain (+ 4°C)
<ul> <li>Bronchial mediastinal or other lymph nodes</li> </ul>	



# **FOWL POX**

## SURVEILLANCE PROTOCOLOF FOWL POX

		The policy on Fowl Pox is as follows:
FOWL POX	Poxviridae family	<ul> <li>Vaccination of birds according to the current vaccination regime.</li> <li>Improve on-farm biosecurity.</li> </ul>

#### Elements of suspicion:

Symptoms:	
Cutaneous form (dry pox) has proliferative lesions, ranging from small nodules to spherical wartlike masses on the skin of the comb, wattle, and other unfeathered areas. Diphtheritic form (wet pox), slightly elevated	<ul> <li>Flock</li> <li>Slow spreading virus of chickens and turkeys.</li> <li>Mortality higher for diphtheritic form compared to cutaneous form, sometimes nearing 50% particularly in young birds.</li> </ul>
white opaque nodules develop on the mucous membranes. Rapidly increase in size to become a yellow diphtheritic membrane. Lesions occur on the mucous membranes of the mouth, tongue, oesophagus, larynx or trachea.	<ul> <li>Postmortem examination:</li> <li>As described in clinical signs</li> </ul>

### Legitimate suspicion at the level of the flock

Sudden and high mortality associated to one of the signs of lesions mentioned above

#### What to do in case of suspicion:

In each flock:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

### Samples to collect from sick birds:

Sampling	Conservation
Histological examination of cutaneous or diphtheritic lesions.	Conserve under cold chain (+ 4°C)

#### Samples to collect from dead birds:

Sampling	Conservation
Tracheas, tracheal swabs, skin lesions and tissues for PCR/real-time PCR	<ul><li>formalin-fixed</li><li>paraffin-embedded</li></ul>















# HAEMORRHAGIC SEPTICAEMIA

## SURVEILLANCE PROTOCOL OF HAEMORRHAGIC SEPTICAEMIA

HAEMORRHAGIC SEPTICAEMIA		The policy on Haemorrhagic Septicaemia is as follows:
No reported cases	Pasteurella multocida	<ul> <li>Annual vaccination in endemic areas</li> <li>Import control</li> </ul>
of zoonosis		

#### Elements of suspicion:

Clinical signs:	
<ul> <li>A fever, dullness, and reluctance to move</li> <li>Salivation and a serous nasal discharge develop</li> <li>Oedematous swellings in the pharyngeal region, ventral cervical region and brisket.</li> <li>Sudden death or protracted course up to 5 days.</li> <li>Chronic cases do not seem to occur in cattle and buffalo.</li> </ul>	<ul> <li>Herd:</li> <li>Cattle and water buffaloes - very susceptible.</li> <li>Case fatality approaches 100% if treatment is not followed at the initial stage of infection.</li> <li>In endemic areas most deaths are confined to older calves and young adults.</li> <li>Sheep, goats and swine, not a frequent or significant disease</li> <li>Infrequently in deer, camels, elephants, horses, donkeys and yaks</li> <li>Postmortem examination:</li> <li>Widespread haemorrhages, oedema, and hyperaemia, consistent with severe sepsis</li> <li>Swelling of the head, neck, and brisket occurs in nearly all cases</li> <li>Similar swellings can also be found in the musculature.</li> </ul>

#### Legitimate suspicion at the level of the herd

Sudden and high mortality associated to one of the signs of lesions mentioned above

#### What to do in case of suspected case:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

# Samples to collect from

Live animals:	
Nasal swab or blood	

	Recently Dead	Preservation
•	A heparinised blood sample or swab collected from the heart within a few hours of death	
•	AND a nasal swab.	Blood samples should be placed in a standard transport
•	Other visceral organs may also be sampled if a PME is not feasible, with blood samples taken from the jugular vein by aspiration or incision	medium and transported on ice packs.
٠	Spleen and bone marrow	

Animals dead for a long time	Preservation
Long bone (femur/humerus) should be taken.	On ice and transported



## **GUMBORO DISEASE (INFECTIOUS BURSAL DISEASE)**

### SURVEILLANCE PROTOCOL OF GUMBORODISEASE (INFECTIOUS BURSAL DISEASE)

		The policy on Gumboro is as follows:
GUMBORO DISEASE	Infectious	
(INFECTIOUS	bursal disease	<ul> <li>Import control for commercial birds, day-old-chicks and hatching eggs.</li> </ul>
BURSAL DISEASE)	virus, family	Vaccination of birds according to the
	Birnaviridae	current vaccination regime.

#### Elements of suspicion:

Symptoms:	
Following an incubation period of 3–4 days, clinical signs may include: severe prostration incoordination watery diarrhea soiled vent feathers vent picking inflammation of the cloaca	<ul> <li>Flock <ul> <li>Turkeys, ducks, guinea fowl, pheasants and ostriches may be infected, but clinical disease occurs only in chickens.</li> <li>Only chickens younger than 10 weeks are usually clinically affected.</li> <li>Older chickens usually show no clinical signs</li> <li>Flock shows very high morbidity with severe depression in most birds lasting 5-7 days. Mortality usually 10% but can reach 30-40% or more.</li> </ul> </li> <li>Postmortem examination: <ul> <li>cloacal bursa becomes edematous, with a yellowish colored transudate on the surface.</li> <li>hemorrhages on the serosal and mucosal surfaces</li> <li>congestion and hemorrhage of the pectoral and leg muscles</li> </ul> </li> </ul>

#### Legitimate suspicion at the level of the flock

Highly contagious disease of chicken usually between the ages of 3-6 weeks with gross lesions in the cloacal bursa.

#### What to do in case of suspicion:

In each flock:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report

# Samples to collect from sick birds:

Sampling	Preservation
<ul><li>blood collected from the jugular vein</li><li>obtain sera.</li></ul>	<i>Store</i> sera at −20 °C until tested

# Samples to collect from dead birds:

Sampling	Preservation
<ul> <li>samples should be collected from sick or freshly dead birds.</li> <li>Fresh bursa and spleen for virus isolation.</li> <li>Samples of bursa, spleen, intestines,</li> </ul>	<ul> <li>should be collected in neutral buffered formalin for histopathology</li> </ul>
<ul><li>caecal tonsil, liver and kidney</li><li>Blood samples for serology.</li></ul>	conserve under cold chain



# **AFRICAN HORSE SICKNESS**

## SURVEILLANCE PROTOCOL OF AFRICAN HORSE SICKNESS

<b>AFRICAN HORSE</b>	African Horse	The policy on African Horse Sickness is as
SICKNESS	Sickness Virus, genus Orbivirus	<ul><li>follows:</li><li>Annual vaccination of all horses.</li></ul>
Not zoonotic	9 distinct serotypes	<ul> <li>Import control for horses.</li> </ul>

#### Elements of suspicion:

Symptoms:	
Respiratory form: coughing, dyspnoea, pyrexia, frothy nasal discharge Cardiac form: pyrexia, periorbital swelling, facial swelling	<ul> <li>Herd:</li> <li>Equids: horses, mules, donkeys and zebra.</li> <li>Morbidity and mortality vary with species of animal, previous immunity and form of disease.</li> </ul>
Mixed form: combination of above signs	<ul> <li>Horses particularly susceptible and mortality rate is 50-95%</li> <li>Mules mortality is about 50% and Asian/European donkeys 5-10%. Mortality</li> </ul>
Horse sickness fever: milder form in partially immune horses, characterised by fever and	<ul> <li>Dogs have peracute fatal infection after eating infected horsemeat</li> </ul>
depression	Postmortem examination:

#### What to do in case of suspicion:

- To alert the RVO and the Epidemiological Unit
- To fill up the " VF1 "
- To carry out and condition the samples as per indicated bellow.
- To send the samples(with the sample forms) forms immediately to the laboratory.

#### Samples on live animals:

Sampling	Conservation
Agent detection: Unclotted whole blood collected in an appropriate anticoagulant at the early febrile stage.	Sent at 4°C to the laboratory under cold chain.

#### Samples on dead animals:

Sampling	Preservation
Agent detection:	Placed in appropriate transport
Spleen, lung and lymph node samples collected from freshly dead animals	media and sent at 4°C to the laboratory; <b>do not freeze.</b>

## LUMPY SKIN DISEASE

## SURVEILLANCE PROTOCOL OF LUMPY SKIN DISEASE

LUMPY SKIN	Lumpy skin disease virus, genus	The policy on Lumpy Skin Disease is as follows:
Not zoonotic	Capripoxvirus (Neethling)	<ul> <li>Symptomatic treatment</li> <li>Import control for wild and domestic bovine products intended for agricultural or industrial use.</li> </ul>

#### Elements of suspicion:

CI	inical signs:	
•	High fever (up to 41°C)	Herd:
•	Marked reduction in milk yield if lactating	<ul> <li>Highly host specific and causes disease only in cattle</li> </ul>
•	Depression, anorexia and emaciation	and water buffalo.
•	Rhinitis, conjunctivitis and excessive salivation	<ul> <li>Susceptibility of wild ruminants is not well known.</li> </ul>
•	Enlarged superficial lymph nodes	Postmortem examination:
•	Cutaneous nodules of 2-5cm in diameter	• As described in clinical signs.
•	develop, which are firm, round and raised.	
•	These nodules may become necrotic and eventually fibrotic, and can remain for months ('sit fasts')	
•	Pox lesions, erosions and ulcers can develop in the mucous membranes.	
•	Limbs and ventral parts may develop oedema	
•	Abortion	

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

# Samples on live animals:

Sampling	Conservation
<ul> <li>PCR detection:</li> <li>Send skin nodules, scabs, saliva, nasal secretions, samples</li> </ul>	Should be placed under cold chain.
blood samples	



## PESTE DES PETITS RUMINANTS

#### SURVEILLANCE PROTOCOL OF THE PESTE DES PETITS RUMINANTS (SP / PPR)

PESTE DES PETITS		The policy on Peste des Petits
RUMINANTS		Ruminants is as follows:
Peste des petits ruminants (PPR) is a contagious transboundary disease which has severe negative <u>socio-economic</u> <u>impacts</u> on the income of livestock farmers and, in particular, the livelihoods and food security of the most vulnerable rural communities, notably of women	Morbillivirus	<ul> <li>Annual vaccination at 6 months of age before onset of the rains.</li> <li>Use of homologous PPR vaccine</li> <li>Symptomatic treatment of sick animals.</li> <li>Import control for wild ruminants and domestic small ruminants.</li> <li>On the way to eradicate PPR by 2030</li> </ul>
Not zoonotic		

#### Elements of suspicion:

Clinical signs:	
<ul> <li>High fever (41 - 42°C)</li> </ul>	Herd:
Ocular and nasal discharge	<ul><li>Mostly goats affected</li><li>Can affect 50 - 100% of a herd</li></ul>
Pneumonia: coughing	Sheep less affected
Oral erosive lesions and	Occasionally affect wild small ruminants     Postmortem examination:
salivation	<ul> <li>Erosions of mouth, gastrointestinal and</li> </ul>
Profuse diarrhoea with or	<ul><li>urogenital tracts</li><li>Linear red areas of congestion or haemorrhage</li></ul>
without mucous and blood	can occur along the longitudinal mucosal folds of
<ul> <li>Can also occur in subclinical form</li> </ul>	<ul><li>the large intestine and rectum (zebra stripes).</li><li>Interstitial bronchopneumonia</li><li>Lymph nodes enlarged</li></ul>

#### Legitimate suspicion at the level of the herd

Symptons as listed above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

## Samples on live animals:

Sampling	Conservation
-Virus isolation: whole blood is collected with anticoagulant	
- PCR: place serum under EDTA or heparin	Should be placed under cold chain.

## Samples on dead animals:

Sampling	Conservation
Spleen, lungs, and intestinal mucosae,	
<ul> <li>lymph nodes, especially the mesenteric and bronchial nodes, spleen,</li> </ul>	All the samples have to be transported with ice packs (cold chain).



PPR / About - OIE reference laboratory network for peste des petits ruminants (PPR)

## **BOVINE BRUCELLOSIS**

### **Bovine Brucellosis is zoonotic**

## SURVEILLANCE PROTOCOL OF BOVINE BRUCELLOSIS

		The policy on Brucellosis is as follows:
BOVINE BRUCELLOSIS	Brucella abortus	<ul> <li>Screening of peri-urban dairy herd using Rose-Bengal Test.</li> <li>Reduce the incidence of the disease by</li> </ul>
Zoonotic		<ul> <li>vaccinating the heifer-calf with S19 vaccine (bulls should not be vaccinated at any age).</li> <li>Import control for cattle meant for breeding or rearing (except castrated males).</li> </ul>

#### Elements of suspicion:

Clinical signs:	
<ul> <li>Adult cattle:</li> <li>Abortion Storm (5-40%)- abortion into 5th-9th month of pregnancy. Weak calves can die soon after birth.</li> <li>Epididymitis and orchitis, one testis bigger than the other</li> <li>Infertility in both sexes</li> <li>arthritis and hygromas (involving leg joints)</li> <li>Infections in non-pregnant females usually asymptomatic.</li> </ul>	<ul> <li>Herd:</li> <li>It affects cattle, swine, sheep and goats, camels, equines, and dogs.</li> <li>It may also infect other ruminants, some marine mammals and humans.</li> <li>Postmortem examination: <ul> <li>Aborted foetus may appear normal or be autolyzed or have evidence of a genarlised bacterial infection.</li> <li>Placenta can be oedematous and hyperemic. Intercotyledonary areas are often thickened.</li> <li>Some females have metritis.</li> <li>Epididymitis, orchitis and seminal vesiculitis . In chronic cases the testes can be atrophied.</li> <li>Hygromas in some animals</li> </ul> </li> </ul>

#### Legitimate suspicion at the level of the herd

- Sick animals at least 2 symptoms from those listed above
- Dead animals at least 2 lesions from those listed above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Weekly reporting until the outbreak is over.
- Final (comprehensive) Report.

# Samples on live animals:

	Sampling	Conservation
•	Aborted foetus: stomach contents, spleen and lungs AND blood smear from aborted foetal membrane	
•	Serum	Seek advice on testing from the
•	Milk	laboratory.
•	Semen	
٠	Vaginal swab	
•	Arthritis or hygroma fluids	



Sourced from Wikimedia Commons:

## **BOVINE SPONGYFORM ENCEPHALOPATHY (BSE)**

Classical BSE is considered zoonotic

		The policy on BSE is as follows:	
BOVINE SPONGYFORM		<ul> <li>Import control for fresh meat (bone-in or deboned) and meat products from cattle.</li> </ul>	
ENCEPHALOPATHY		<ul> <li>targeted surveillance of bovines that show signs</li> </ul>	
	Duinu	on the clinical spectrum of BSE;	
Creutzfeldt-Jakob	Phon	<ul> <li>prohibition of the inclusion of tissues with the</li> </ul>	
humans has been		greatest infectivity (brain, spinal column, etc.) in	
causally linked to		animal feeds.	
BSE	SE	In case of outbreak, 'Stamping-out' carried out.	
		Awareness creation of the disease	

## SURVEILLANCE PROTOCOL

#### Elements of suspicion:

Clinical signs:	
Clinical signs of BSE are found in <b>adult animals</b> , which may demonstrate some of the following clinical signs:	Herd: • Bovine
<ul> <li>nervous or aggressive behaviour;</li> </ul>	
depression;	
<ul> <li>hypersensitivity to sound and touch, twitching, tremors;</li> </ul>	
abnormal posture;	
<ul> <li>lack of coordination and difficulty in rising from a lying position;</li> </ul>	
weight loss, or;	
decreased milk production.	

## Legitimate suspicion at the level of the herd

BSE may be suspected based on clinical signs.

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms

Sourced from Wikimedia:



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Caption: This cow with BSE displays abnormal posturing and weight loss.

## DERMATOPHILOSIS

#### Dermatophilosis is zoonotic

### SURVEILLANCE PROTOCOL OF DERMATOPHILOSIS

DERMATOPHILOSIS		The policy on Dermatophilosis
is a chronic bacterial skin disease characterized by crustiness and exudates accumulating at the base of the hair or wool fibers. It is Zoonotic	Dermatophilus congolensis	<ul> <li>Control of ticks by spraying, dipping or application of spot- on acaricides.</li> </ul>

#### Elements of suspicion:

CI	inical signs:						
•	Hairs matted together	He	erd:				
•	Crusts or scab formation	•	Affects wide variety of species Deaths can occasionally occur if, particularly in				
•	Pruritus is variable	calves and lambs, because of generalis disease with or without secondary infec					calves and lambs, because of generalised
•	Accumulations of cutaneous		disease with or without secondary infections.				
	keratinised material.						

#### Legitimate suspicion at the level of the herd

Symptoms as listed above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hours)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Samples:

Sampling	Conservation
Microscopic examination of stained skin crusts and identification of the classic morphology of rows of Gram-positive bacteria	

Sourced from Wikimedia:

officers must always wear personal protective equipments before touching any dead animal



Caption: Dermatophilosis of a steer in West Africa, caused by Dermatophilus congolensis bacteria and aggravated by simultaneous infestation with Amblyomma variegatum ticks which suppress the immunity of their host.

# **CONTAGIOUS PUSTULAR DERMATITIS (ORF)**

### **Contagious Pustular Dermatitis is zoonotic**

## SURVEILLANCE PROTOCOL OF CONTAGIOUS PUSTULAR DERMATITIS (ORF)

CONTAGIOUS PUSTULAR DERMATITIS (ORF)	Parapoxvirus	The policy on ORF is as follows:
		<ul> <li>Immediate isolation of infected animals</li> <li>Clean up contaminated areas</li> </ul>
		<ul> <li>Symptomatic treatment</li> </ul>

#### Elements of suspicion:

Clinical signs:		
•	Scabs progressing to proliferative lesions at the hoof/horn junctions, teats and on the lips/gum margins.	<ul> <li>Herd:</li> <li>Sheep and goats</li> <li>Mortality in uncomplicated cases is low.</li> <li>Complications can include gangrenous mastitis.</li> </ul>
•	Lesions persist for 2-4 weeks and then slowly regress.	<ul><li>Postmortem lesions:</li><li>As per clinical signs</li></ul>

#### Legitimate suspicion at the level of the herd

Symptons as listed above

#### What to do in case of suspicion:

- Carry out sampling as indicated below;
- Inform immediately the supervising officer (by the fastest means and within 24 hrs)
- Fill and send immediately the VF1 forms
- Send samples (with samples forms) to the nearest Laboratory
- Monthly reporting until the outbreak is over.
- Final (comprehensive) Report.

#### Sample collection:

Sampling	Conservation
PCR examination of lesions to confirm clinical diagnosis	





