



## Peste des Petits Ruminants (PPR)

### Symptoms

#### Symptoms in sheep and goats:

- The acute form of the disease is the most common in goats. Symptoms begin with sluggishness and a sudden rise in temperature, which continue for 3-5 days. Soon, the animal becomes listless and loses appetite, inflammation develops on the mucous membranes, and crusting appears on the nostrils, causing sneezing and snoring. Later, the mucus becomes purulent and gives a putrid odor to the breath.
- Among other symptoms are small necrotic areas on the mucous membrane of the nostrils, as well as crusting in the corner of the eye and around the females' vagina. In some infected animals, conjunctivitis may occur.
- In the most severe cases, inflammation of the lower lip, gum, and gum line may appear around the incisor teeth. In the most acute cases, necrotizing inflammation can include the dental pad, palate, cheeks, and tongue.
- Diarrhea is frequent, accompanied by dehydration, emaciation, and hypothermia. Death may occur within 5-10 days.
- In the late stages of the disease, tracheitis may develop, evidenced by severe coughing.
- Abortion may occur in pregnant animals. The mortality rate is higher in young animals.
- The subacute form of the disease is more common in sheep and may occur in goats as well, characterized by less severe symptoms. Most cases recover within two weeks, and the mortality rate in sheep is less than 10%.

### Complications (animals/humans)

- PPR is a highly contagious and rapidly spreading viral disease, and is one of the most significant transboundary animal diseases affecting mainly small ruminants, particularly goats and, to a lesser extent, domestic and wild sheep.
- The morbidity rate is high among animals that have not been infected before, and death rate is very high, up to 90%, especially among young animals. The incubation period is about 3 weeks.
- This is not a zoonotic disease

### Sources of infection and methods of transmission

- The virus is found in infected animal secretions, such as nasal and lacrimal secretions, mucus, or feces. Transmission of the infection from the infected animal to in-contact animals is carried out directly or, in limited cases, indirectly. The infection occurs mainly through inhalation of aerosol contaminated with the virus, however, it is also possible through the conjunctiva and the mucous membrane of the mouth.
- Animals that recover from the infection do not become disease carriers.

### Methods of prevention

1. Commitment to applying biosecurity measures, including movement control
2. Compliance with quarantine measures and avoiding the admission of new animals into the herd before ensuring their health
3. Cleaning and disinfection of facilities and all infected items, such as tools, vehicles, and personal protective equipment
4. Commitment to vaccination programs against the disease
5. Reporting any suspected cases

The PPR virus is very fragile and cannot survive outside the host for long, as it is destroyed by sunlight within two hours. It also loses its potency when exposed to strong acids and alkalis as well as 2% phenol and 2% formalin.

### Actions in case of suspected infection

Isolate the suspected cases, do not relocate the animals, consult a veterinarian, and immediately report the disease to the nearest point of contact for the authorities concerned with animal health in the emirate. This disease must be reported in the UAE according to Federal Law No. 8 of 2013 on the prevention and control of contagious and epidemic animal diseases.



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## Brucellosis

### Symptoms

This chronic bacterial zoonotic disease affects humans and animals, such as sheep, goats, cows, camels, horses, dogs, pigs, and wild animals. Sexually immature animals often do not show clinical symptoms or show limited symptoms, while adult animals are the most sensitive to infection, especially during breeding season.

#### Symptoms in animals:

- The bacteria cause inflammation in embryonic membranes, leading to abortion in infected females during the late stages of pregnancy.
- Other symptoms include placental retention and weak newborn that die immediately after birth.
- Infected animals suffer from poor fertility and infertility, and the disease causes inflammation in the testes and joints in males.
- Infected females usually have an abortion once and then carry the disease for several years while shedding bacteria intermittently.

### Complications (animals/humans)

- Brucellosis causes undulant fever (Malta fever) in humans, and is considered one of the occupational diseases that can affect individuals who work closely with livestock, such as farmers, slaughterhouse staff, and veterinarians. It is also transmitted through the consumption of unpasteurized dairy products from infected animals.
- The disease results in heavy losses, as infected herds suffer from abortions or stillbirth, which leads to permanent or temporary infertility and lack of milk production.

### Sources of infection and methods of transmission

- The bacteria are found in the organs and secretions of infected animals, such as the placenta, fetal fluids, the fetus, vaginal secretions, milk, semen, and urine. The largest sources of infection are the contents of the uterus, fetus, and placental membranes.
- The disease is transmitted mainly by drinking contaminated water or eating contaminated feed, or by licking infected placenta, fetuses, calves, or the external genital membranes of infected cows after abortion. Infection may also occur through the penetration of bacteria into the skin or mucous membranes and conjunctiva, or by inhalation of infected droplets.
- Transmission by natural insemination rarely occurs in livestock, while calves may be infected inside the uterus during pregnancy or by nursing from infected dams.

### Methods of prevention

#### Methods of prevention in animals:

1. Commitment to applying biosecurity measures
2. Conducting periodic laboratory tests to detect brucellosis in the herd
3. Admitting new animals into the herd only after ensuring their health
4. Isolating infected animals and slaughtering animals that have tested positive for the disease
5. Controlling the movement of animals in affected herds until they are examined to ensure they are disease-free
6. Applying sterilization and disinfection procedures at infected farms after the disposal of animals that have tested positive for the disease
7. Tightening controls on imported animals and preventing the entry of infected animals

#### Methods of prevention in humans:

1. Avoiding drinking unpasteurized milk and products made from it or eating undercooked meat from animals infected with the disease
2. Taking the necessary hygienic precautions in dealing with aborted animals, especially sanitary disposal of aborted fetuses and placenta

The *Brucella* bacteria can survive for up to 8 months in the shade in aborted fetuses, for 2-1 months in dry soil, for 3-2 months in wet soil, for 4-3 months in manure, and for 8 months at °15C in manure pits and drainage on farms, but cannot last in direct sunlight beyond several hours.

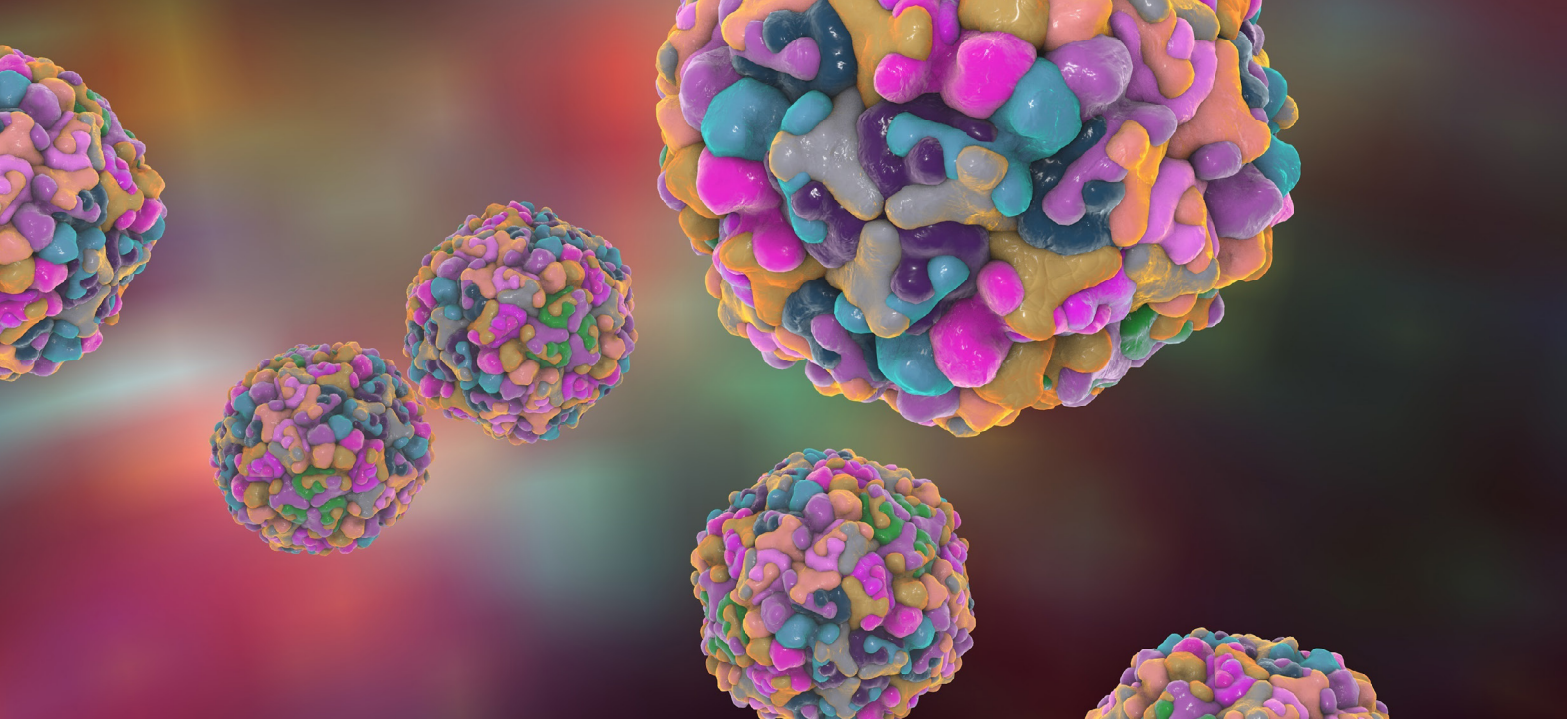
- Pasteurization kills the bacteria. They also cannot survive in sour-milk curd or any low-pH dairy product.
- In addition, the bacteria are sensitive to chemical disinfectants, such as carbolic acid at a concentration of %5-2.

### Actions in case of suspected infection

Isolate the suspected cases, do not relocate the animals, consult a veterinarian, and immediately report the disease to the nearest point of contact for the authorities concerned with animal health in the emirate. This disease must be reported in the UAE according to Federal Law No. 8 of 2013 on the prevention and control of contagious and epidemic animal diseases.







## Foot and Mouth Disease

### Symptoms

#### Symptoms in cattle:

- Initial symptoms include fever, loss of appetite, chills, and reduction in milk production for 2-3 days. In addition, vesicles (aphthae) begin to form on buccal and nasal mucous membranes, on the mammary glands, and in the interdigital space and coronary band of the feet, leading to lameness.
- Rupture of the vesicles results in ulcers.
- Complications include tongue lesions, gingivitis, hoof deformation, mastitis and permanent impairment of milk production, myocarditis, abortion, permanent weight loss, and loss of temperature control.
- Young animals may die of myocarditis.

#### Symptoms in sheep and goats:

- The most frequent symptom is fever. Lameness and oral lesions are often mild.
- Foot lesions along the coronary band or interdigital space may go unrecognized.
- Agalactia is also a feature.
- Death of young stock may occur without clinical signs.

In conclusion, the disease can be suspected in the event of a rise in temperature with sluggishness, no rumination, decreased milk production, and inflammation of the mucous membrane of the mouth, which causes excessive salivation.

### Complications (animals/humans)

- Foot-and-mouth disease is a viral disease affecting domestic and wild cloven-hoofed animals.
- It is characterized by low mortality rates and high morbidity rates in adults.
- This is one of the most serious diseases due to its rapid spread and economic losses caused by low production of meat and milk as well as mortality among calves that may reach 50%.
- This is not a zoonotic disease.

### Sources of infection and methods of transmission

- The sources of infection are sick animals and carrier animals. These animals excrete the virus in saliva containing vesicular fluids that have the highest concentrations of the virus, as well as in milk, urine, feces, and semen. The virus is also found in meat that has been frozen quickly, especially uncooked meat.
- Transmission of the infection occurs by inhalation of contaminated air, and winds may transmit the virus for more than 100 km. To a lesser extent, it may also spread by eating contaminated feed or by means of transportation, clothes, and tools, as well as through dogs, cats, birds, and mice.

### Methods of prevention

1. Commitment to applying biosecurity measures, including movement control
2. Compliance with quarantine measures and avoiding the admission of new animals into the herd before ensuring their health
3. Cleaning and disinfection of facilities and all infected items, such as tools, vehicles, and personal protective equipment
4. Commitment to vaccination programs against the disease
5. Reporting any suspected cases

The viruses that cause foot-and-mouth disease are affected by acids, alkalis, and sunlight, but they can survive for a year or more in contaminated sheds, for 12-10 weeks in clothes and fodder, and for 30 days in frozen semen at °79-C. %2 sodium hydroxide and %2 formalin are the best disinfectants, especially after cleaning with %5 sodium carbonate.

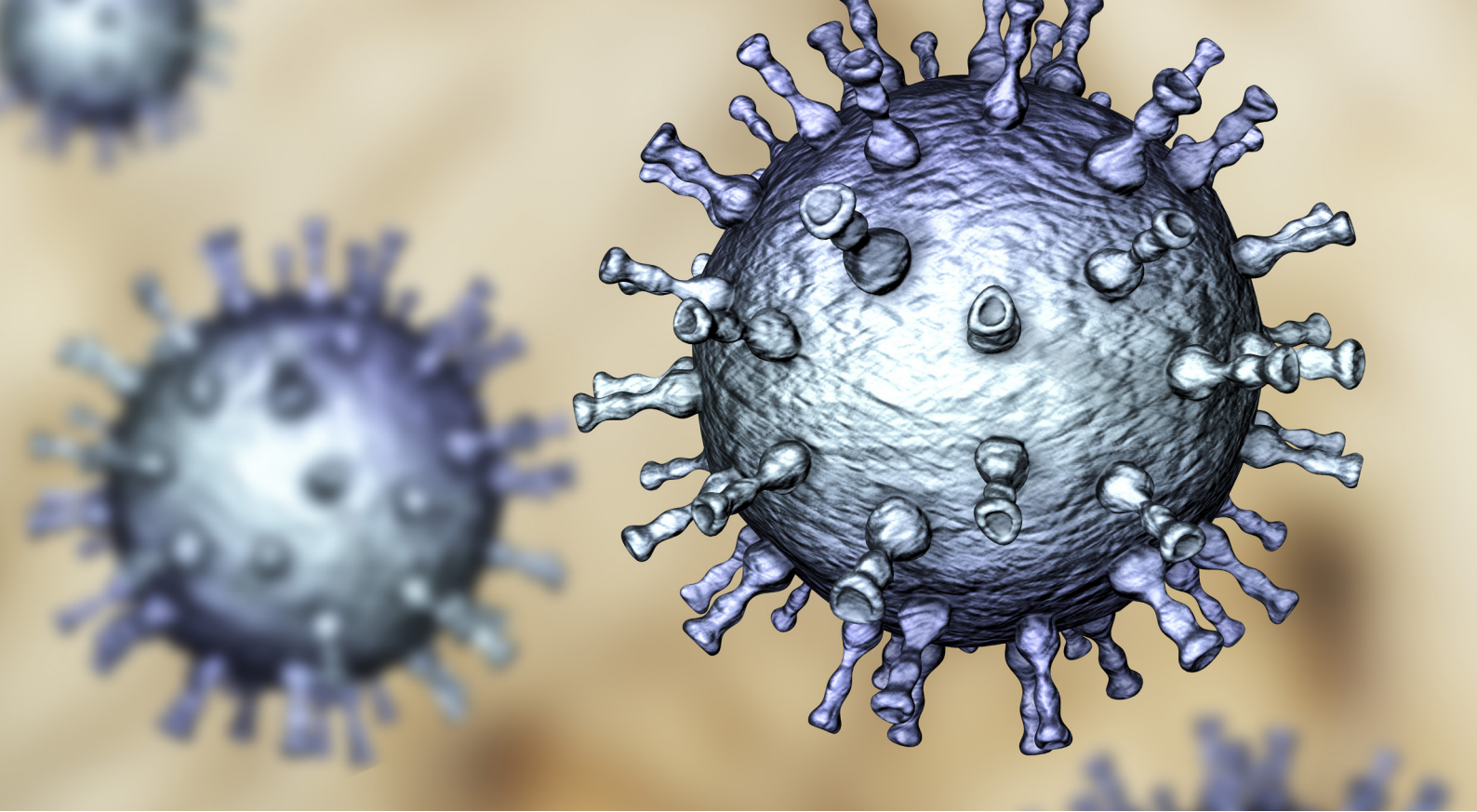
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## Sheep and Goat Pox

### Symptoms

Sheep and goat pox is a highly contagious acute or subacute viral disease that affects sheep and goats. Symptoms include fever and a skin rash that begins to appear in the form of red spots, which over time turn into blisters that cover the entire body and are concentrated around the eyes, mouth, nose, udder area, and under the tail.

### Complications (animals/ humans)

- The disease affects 70-80% of the herd, and causes abortion and death in 5-10% of the infected animals. Death rate can approach 100% in imported animals. In addition to its negative impact on international trade, the disease causes a decline in the production of meat, wool, and leather in terms of quantity as well as quality.
- This is not a zoonotic disease.

### Sources of infection and methods of transmission

- Cutaneous fluids and dry skin flakes are the most important sources of infection. The virus is also found in saliva, nasal and lacrimal secretions, milk, wool, hair, and untreated leather, as well as in the respiratory droplets of the affected animals.
- The disease is mainly transmitted by direct contact between sick animals or those that have recovered from the disease and animals susceptible to infection through skin contact, as well as indirectly through tools and means of animal transport. Inhalation of contaminated droplets, contaminated soil, as well as blood-sucking insects may play a limited role in the spread.

### Methods of prevention

1. Commitment to applying biosecurity measures, including movement control
2. Compliance with quarantine measures and avoiding the admission of new animals into the herd before ensuring their health
3. Cleaning and disinfection of facilities and all infected items, such as tools, vehicles, and personal protective equipment
4. Commitment to vaccination programs against the disease
5. Reporting any suspected cases
6. Avoiding releasing animals in open pastures if there are infected cases in the same area
7. In case of previous morbidity, cleaning the ground thoroughly, removing the litter, and replacing it with a fresh layer

The viruses that cause the disease are resistant to normal environmental conditions and can survive for 3 months in the scales of skin lesions. They can also survive for up to 2 years in dark, cold places and remain in contaminated pens for up to 6 months. Meanwhile, they are destroyed by sunlight within minutes, and their infectivity is affected by most disinfectants, especially iodine and chlorine dioxide.

### Actions in case of suspected infection

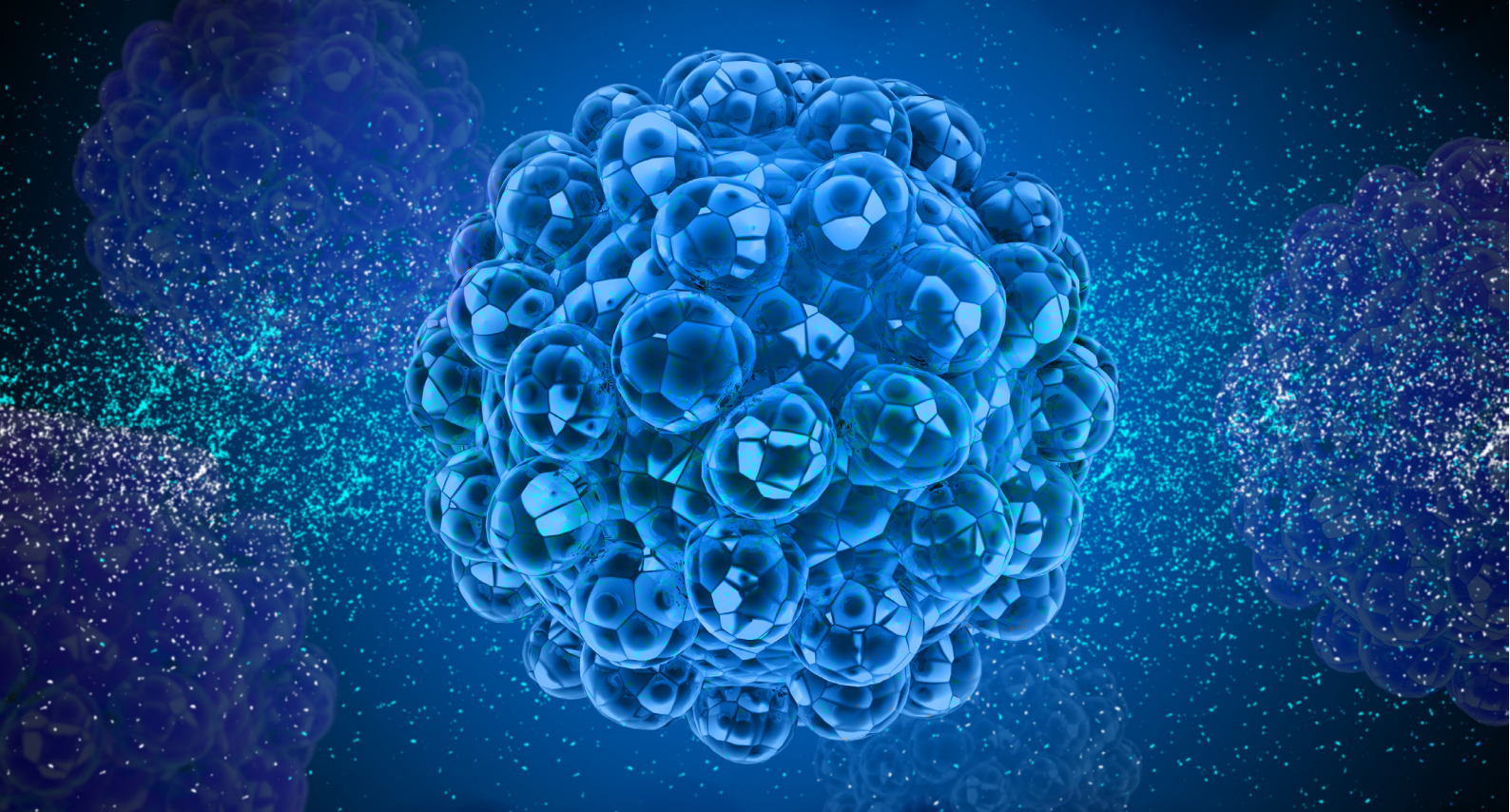
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## Avian Influenza

### Symptoms

#### Symptoms in animals

- Avian influenza has high mortality of up to 100%.
- Symptoms include sluggishness, apathy, lack of appetite, breathing difficulty, facial swelling, and cyanosis of the unfeathered skin on the head, comb, and wattle.
- Decrease in egg production, and soft-shelled or misshapen eggs also occur.

### Complications (animals/ humans)

- Avian influenza is a highly contagious and highly pathogenic viral infection that affects all species of birds and may also infect some mammals. The mortality rate at farms varies according to the severity of the disease and the virulence of the type. The virus does not get destroyed by freezing the birds but remains infinitely. If the infected birds are not disposed of, they will infect all farm poultry because the disease is easily transmitted through the birds' secretions.
- This is a zoonotic disease, and the global mortality rate reaches 60%.

### Sources of infection and methods of transmission

- Waterfowl, such as ducks and geese, are among the most important sources of the avian influenza virus and are the main reservoir of infection, as wild waterfowl do not show any signs of infection and may shed the virus into their litter for a long time.
- Another source are live bird markets located in major cities, as they represent the epicenter of infection for chickens, which are then sold to different regions, and therefore offer ideal conditions for the multiplication of the virus, its genetic mutation, and its transmission to other birds and perhaps to humans.
- The avian influenza virus has been isolated from imported ornamental birds, which represent another source of transmission to birds that live in captivity, wild birds, and poultry.
- The virus is excreted in the respiratory secretions and the feces of birds.
- Once the avian influenza virus enters the poultry flock, it is spread from farm to farm by direct and indirect contact. The virus can be transmitted by contaminated shoes, clothes, cages, and tools, and by transporting chickens from one location to another.

### Methods of prevention

1. Commitment to applying biosecurity measures, including movement control
2. Compliance with quarantine measures and avoiding the admission of new birds into the flock before ensuring their health
3. Cleaning and disinfection of facilities and all infected items, such as tools, vehicles, and personal protective equipment
4. Commitment to vaccination programs against the disease
5. Reporting any suspected cases

The virus is largely affected by environmental factors, especially high temperature, and can be eliminated by boiling or pasteurization, as well as most disinfectants. However, it can survive for several months in cold weather.

### Actions in case of suspected infection

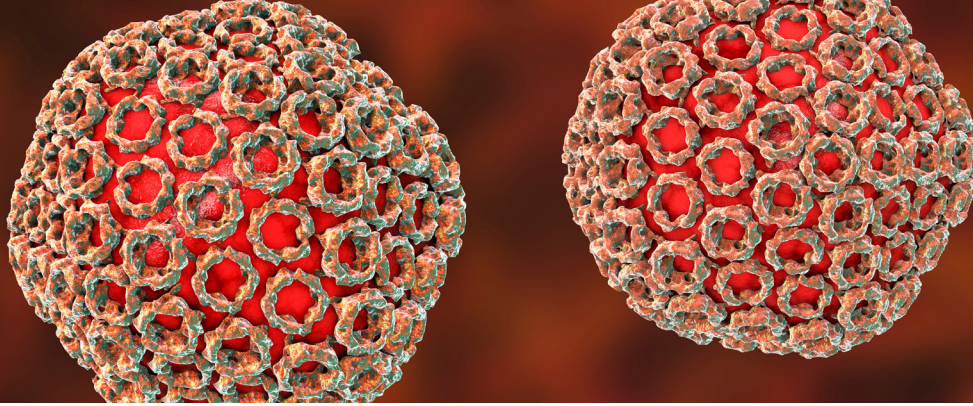
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## Rift Valley Fever

### Symptoms

The disease has never been reported in the UAE but is known in some African countries (the Horn of Africa) due to the presence of mosquitoes – the vector that spreads the infection with the recurrence of river floods that provide an ideal environment for their breeding. It is also transmitted by other blood-sucking insects, and infected wild animals play a role in the spread of the disease to domesticated animals.

### Symptoms in animals

- The disease affects mainly sheep but also cows, goats, buffaloes, and camels, although at a lower rate. Signs of the disease in other animals tend to be non-specific; however, the presentation of numerous abortions and mortalities among young animals, together with influenza-like symptoms in humans, is indicative.
- The most common clinical symptoms in animals include fever, loss of appetite, general weakness, bloody or fetid diarrhea, lacrimation, nasal discharge, excessive salivation, and fall in milk production.
- The disease manifests itself with significant and sudden mortality, especially in lambs, kids, and calves. Mortality reaches 100% in lambs and kids, 70% in calves, and lower rates in adults.
- Abortion storms with rates approaching 80-100% are a telltale sign in animals, especially sheep.
- Camels are resistant to the disease, except for abortion in pregnant females.

### Complications (animals/humans)

- Rift Valley fever is one of the zoonotic diseases affecting multiple animal species in addition to humans. It is a severe infectious disease that is transmitted at a large scale if not quickly controlled.
- Outbreaks appear clearly and periodically in areas where the disease is registered, and have a negative health, social, and economic impact on the livestock sector and on investors, in addition to significant effects on international trade in live animals and their products.
- This is a major occupational disease. The most vulnerable groups are veterinarians and employees of farms, slaughterhouses, entry ports, and diagnostic laboratories dealing with infected specimens, in addition to workers transporting carcasses.
- The global mortality rate in humans is 1%.

### Sources of infection and methods of transmission

- The disease is mainly transmitted by mosquitoes that pass it on to new generations through their eggs. Many other insects spread the disease mechanically.
- The infection is transmitted between animals mainly through insect bites during the viremia stage, while infection by contaminated droplets and skin wounds is of limited importance. Most outbreaks occur during peak insect season.
- The disease is also transmitted to humans through the bites of infected mosquitoes, and through direct and indirect contact with aborted animals and their tissues, uterine secretions, nasal secretions and blood, and the organs and meat of infected animals. In addition, it may be transmitted through unpasteurized milk.

### Methods of prevention

1. Commitment to applying biosecurity measures, including movement control
2. Compliance with quarantine measures and avoiding the admission of new animals into the herd before ensuring their health
3. Cleaning and disinfection of facilities and all infected items, such as tools, vehicles, and personal protective equipment
4. Wearing personal protective equipment, applying repellents in suspected areas before handling dead or infected animals, and avoiding outdoor activities during peak season for mosquitoes and other insects
5. Safe disposal of infected and dead animals, animals with suspected infection, as well as their waste and litter
6. Reporting any suspected cases
7. Mosquito control
8. Regular cleaning and disinfection of animal pens using antiseptics and disinfectants, such as 2% acetic acid, formalin, sodium hypochlorite, or calcium hypochlorite
9. Compliance with the ban on slaughtering infected animals at slaughterhouses, as they pose a danger to public health, especially the health of slaughterhouse workers
10. Avoiding the consumption of unpasteurized milk

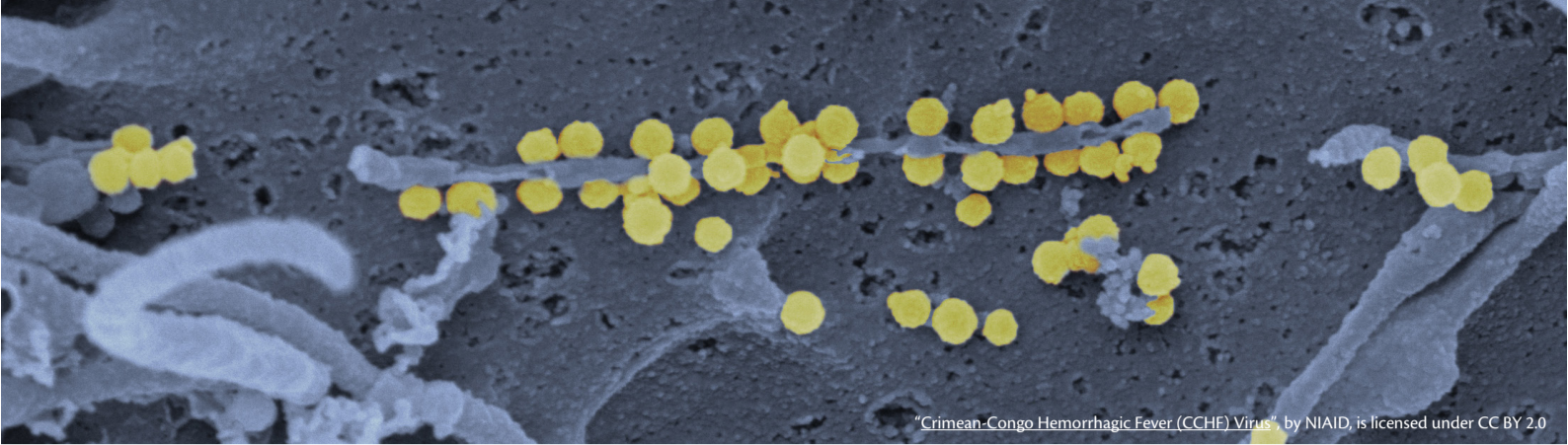
### Actions in case of suspected infection

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## Crimean-Congo Hemorrhagic Fever

### Symptoms

Crimean-Congo hemorrhagic fever (CCHF) is a serious infectious viral disease that affects sheep, goat, cattle, buffaloes, horses, and other types of animals, and is transmitted by ticks. It causes fever and severe bleeding that may lead to death. The virus does not cause any specific clinical symptoms in animals, i.e. animals act as a reservoir for the disease.

### Complications (animals/humans)

- CCHF is a zoonotic disease that causes death to humans.
- It is transmitted from animals to humans by ticks and direct contact with the secretions of infected animals, especially during slaughter.
- This is one of the occupational diseases that mainly affect workers in the field of livestock farming. The most vulnerable groups are farmers, veterinarians, and slaughterhouse employees in endemic areas.
- The UAE is considered a high-risk area due to the presence of the carrier (tick).

### Sources of infection and methods of transmission

- Ticks can be considered a natural reservoir of the disease as well as vector insects because they transmit the infection to the next generation through their eggs.
- In addition to tick bites, the disease can spread to humans during tick removal from animals, and by contact with the blood, fluids, and tissues of animals infected with the virus.
- Farm and slaughterhouse workers and veterinarians are also exposed to infection from the blood of infected carcasses, as the disease can be transmitted by contaminated blood through skin wounds or mucous membranes. The virus remains in the infected animal blood for up to 14 days.

### Methods of prevention

1. Wearing personal protective equipment
2. Tick control using pesticides approved by the Ministry of Climate Change and Environment
3. Avoiding removing ticks from animals with bare hands
4. Commitment to applying biosecurity measures, including movement control
5. Compliance with quarantine measures and avoiding the admission of new animals into the herd before ensuring their health
6. Cleaning and disinfection of facilities and all infected items, such as tools, vehicles, and personal protective equipment
7. Maintaining adequate distance between employee housing and animal facilities at farms
8. Avoiding contact with animal blood and secretions, especially during slaughter
9. Isolating tick-infested animals from the herd
10. Slaughtering animals only in approved slaughterhouses

### Actions in case of suspected infection

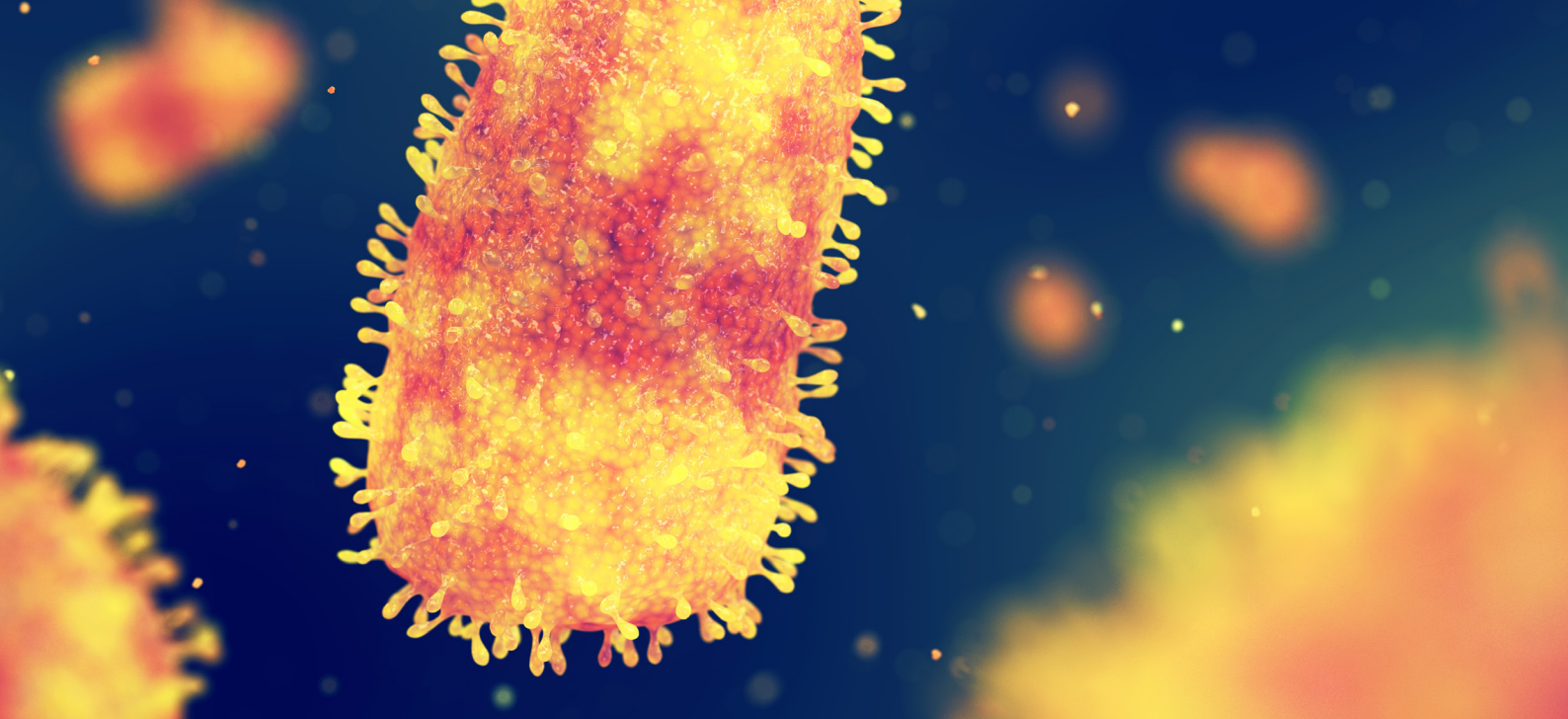
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## Rabies

### Symptoms

The disease mainly affects dogs but can affect all farm animals (sheep, goats, cows, camels, horses, etc.). The symptoms appear in the form of a sudden change in the behavior of the animal, which becomes fierce and aggressive, with severe salivation and attempts to attack and bite anyone in its vicinity. Subsequently, a mild paralysis of limbs and other parts of the body starts and increases over time until it reaches the muscles of the diaphragm, leading to breathing difficulty and death.

### Complications (animals/humans)

Rabies can be transmitted to most animals through a bite by an infected animal. This is a zoonotic disease that causes death to humans and animals.

### Sources of infection and methods of transmission

- Rabid animals secrete the virus in their saliva in large quantities 2-5 days before symptoms appear, and this continues throughout the disease cycle. Vampire bats shed the virus for several months.
- Transmission occurs when saliva contaminated with the virus enters the bite wound and, to a lesser extent, when it touches existing skin wounds or mucous membranes.

### Methods of prevention

1. Reporting any suspected cases
2. Commitment to compulsory vaccination of domesticated dogs (indoor and outdoor) against the disease
3. Conducting a veterinary health check and administering vaccination before taking in animals from the streets
4. Commitment to applying biosecurity measures
5. Compliance with quarantine measures in case of infection or suspected infection

The rabies virus is weak and easily destroyed by sunlight, heat, and ultraviolet light. In dry saliva, it dies within a few hours. The virus is sensitive to most common antiseptics. It is destroyed within minutes with 0.2% ammonium compounds, 1% soap solution, and 5-7% iodine solution. The virus remains stable for several weeks in nerve tissue preserved in a glycerol-saline solution at room temperature, and for several months at 4°C.

### Actions in case of suspected infection

In case of sudden behavioral changes and increased aggression in animals, the following measures must be taken:

1. Isolate the suspected cases, do not relocate the animals, consult a veterinarian, and immediately report the disease to the nearest point of contact for the authorities concerned with animal health in the emirate. This disease must be reported in the UAE according to Federal Law No. 8 of 2013 on the prevention and control of contagious and epidemic animal diseases.
2. If an infected animal dies, it must be dealt with and disposed of by specialists. Avoid any attempt to handle the animal directly for whatever reason, and follow the veterinarian's instructions with the utmost precision.
3. If a person gets bitten, they must wash the wound immediately and thoroughly with soap and water for 10 minutes before proceeding to the emergency room without delay.
4. In case of a human infection or contact with humans dealing with infected animals, health authorities must be informed.



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