

# Contagious Bovine Pleuropneumonia

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*A Disease Fact Sheet  
for Livestock Specialists*

For more technical information,  
see the technical version  
of this fact sheet at  
[http://www.cfsph.iastate.edu/  
DiseaseInfo](http://www.cfsph.iastate.edu/DiseaseInfo)

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## Importance

Contagious bovine pleuropneumonia (plur-OH-new-MOAN-ya) (CBPP) is a highly infectious disease in cattle causing lung and occasionally joint disease. Economic losses can be significant because it is very contagious and affects many animals in a herd. The response to antibiotic treatment can be incomplete, creating chronic carriers; therefore slaughter is generally recommended for infected animals.

## Etiology

The bacterial agent of contagious bovine pleuropneumonia is *Mycoplasma mycoides mycoides* (MY-koe-PLAZ-ma my-COY-dees) small colony type (SC type). *M. mycoides mycoides* large colony type (LC type) does not result in disease in cattle, but causes septicemia, polyarthritis, mastitis, encephalitis, conjunctivitis, hepatitis, and occasionally pneumonia in sheep and goats.

## Species affected

Cattle are the main hosts for contagious bovine pleuropneumonia. European breeds seem to be more susceptible than African breeds. Animals less than three years old are also more susceptible. Bison and yak have been infected in zoos, and infections have been reported in water buffalo (*Bubalus bubalis*). Wild bovids and camels are resistant.

## Geographic distribution

Contagious bovine pleuropneumonia is present in Africa, the Middle East, and parts of Asia (especially India and China). Contagious bovine pleuropneumonia is not currently found in the Western Hemisphere. The United States has been CBPP-free since 1893.

## Transmission

Close proximity is necessary for transmission, which occurs primarily through the inhalation of infected droplets from a coughing animal. The organism is also present in saliva, urine, fetal membranes, and uterine discharges. Disease transmission from cow to fetal calf has been known to occur. Introduction of an animal who is carrying the bacteria but appears healthy into a susceptible herd is the most common cause of outbreaks.

## Incubation period

The incubation period for contagious bovine pleuropneumonia can be long, developing from 20 to 123 days.

## Clinical signs

In adult animals, lethargy, lack of appetite, and fever are the first signs of CBPP, followed by a cough. The signs progress to include chest pain, labored breathing, and an increased respiratory rate. Animals with chronic infections have less obvious signs of pneumonia, but may cough with exercise. These animals are often thin and may have a recurrent mild fever. Infected calves commonly have arthritis in multiple joints with or without pneumonia.

## Post mortem lesions

The post mortem lesions of CBPP include thickening and inflammation of lung tissues. Large amounts of straw-colored fluid may be present in the chest cavity. A characteristic marbled appearance of the affected lungs is caused by the presence of both acute and chronic lesions in the connective tissues. Fluid accumulation in the lungs progresses to excess tissue formation (fibrosis). Encap-

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sulated areas of diseased tissue can be found even in recovered animals. The bacteria can survive for many months within these tissues.

## Morbidity and mortality

Morbidity (illness) rates increase with close confinement. Mortality (death) can be affected by secondary factors in overall health such as nutrition and parasitism and can range from 10-70%.

## Diagnosis

### Clinical

Contagious bovine pleuropneumonia is difficult to diagnose based on clinical signs alone as there can be many causes of severe pneumonia in cattle. CBPP frequently results in disease in only one lung as compared with other types of pneumonia in which both lungs are affected. In a herd with signs of pneumonia in adults and polyarthritis in calves, CBPP should be considered. Post mortem lesions may be more useful in the diagnosis.

### Differential diagnosis

Differentials for acute infections include acute bovine pasteurellosis, and bronchopneumonia and pleuropneumonia resulting from mixed infections. Bovine pasteurellosis generally spreads more rapidly through a herd, so may be distinct. Chronic infections should be differentiated from hydatid cyst, actinobacillosis, tuberculosis, and bovine farcy.

### Laboratory tests

*Mycoplasma mycoides mycoides* can be isolated and identified using several laboratory tests. Blood tests are available for use in active outbreaks.

### Samples to collect

Before collecting or sending any samples from animals with a suspected foreign animal disease, the proper authorities should be contacted. Samples should only be sent under secure conditions and to authorized laboratories to prevent the spread of the disease.

Samples include blood, lung lesions, lung fluids, lymph nodes, and pus associated with the lung tissue.

## Recommended actions if contagious bovine pleuropneumonia is suspected

### Notification of authorities

A quick response is important in containing an outbreak of contagious bovine pleuropneumonia. If you suspect a case of CBPP, consult a veterinarian, who will decide whether state and federal veterinarians should be alerted.

### Quarantine and disinfection

Quarantine of exposed and infected animals is recommended along with testing and slaughter of infected animals. Antibiotic treatment is not recommended. *M. mycoides mycoides* (SC type) may survive in the environment for a few days, but does not survive in meat or meat products. It is inactivated by common disinfectants such as bleach. The organism survives well frozen.

### Public health

CBPP is not considered a public health problem.

## For More Information

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World Organization for Animal Health (OIE)  
<http://www.oie.int>

OIE Manual of Standards  
[http://www.oie.int/eng/normes/mmanual/a\\_summry.htm](http://www.oie.int/eng/normes/mmanual/a_summry.htm)

OIE International Animal Health Code  
[http://www.oie.int/eng/normes/mcode/A\\_summry.htm](http://www.oie.int/eng/normes/mcode/A_summry.htm)

USAHA Foreign Animal Diseases book  
[http://www.vet.uga.edu/vpp/gray\\_book/FAD/](http://www.vet.uga.edu/vpp/gray_book/FAD/)

## References

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“Contagious Bovine Pleuropneumonia.” In The Merck Veterinary Manual, 8th ed. Edited by S.E. Aiello and A. Mays. Whitehouse Station, NJ: Merck and Co., 1998, pp. 1078–1079.

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[http://www.oie.int/eng/maladies/fiches/a\\_A060.htm](http://www.oie.int/eng/maladies/fiches/a_A060.htm).