



## CONTAGIOUS BOVINE PLEUROPNEUMONIA (CBPP)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Cattle ( <i>Bos</i> spp.) Sheep, goat Buffalo Bison Yak Reindeer	Close direct contact (inhalation of droplets)	Respiratory, pulmonary and pleurotic symptoms. Polyarthritits (calves)	Low morbidity and low or non-existent mortality	No efficient	<i>In houses</i>  <i>in zoos</i> Testing, slaughtering of all animals of the herd in which positive animals have been found and quarantine

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<b>Susceptible animal groups</b> Cattle ( <i>Bos</i> spp.), buffalo, yak, bison, reindeer. Sheep, goat. Wild bovinds and camels are resistant	
<b>Causative organism</b> <i>Mycoplasma mycoides</i> subsp. <i>mycoides</i> small colony type (MmmSC). <i>Mycoplasma</i> is a self-replicating, pleomorphic and wall-less prokaryotic organism. Resistant to antibiotics of beta-lactamine group. There is only one antigenic group. Complex media is required for growth in the laboratory.	
<b>Zoonotic potential</b> There is no evidence to indicate that humans are susceptible to this disease	
<b>Distribution</b> CBPP is endemic in most of Africa. It is a problem in parts of Asia, especially India and China. CBPP was eradicated from the United States, Australia and Europe. However, outbreaks have occurred in Spain, Portugal and Italy (1990s).	
<b>Transmission</b> CBPP is spread by inhalation of droplets from an infected coughing animal. Relatively close contact is required for transmission to occur. Alternative routes, like wind-borne and indirect transmission, cannot be excluded.	
<b>Incubation period</b> The incubation period of the natural disease may range from 5 to 207 days. Normal range from 20 to 40 days	
<b>Clinical symptoms</b> a) <u>Acute forms</u> → Dullness, anorexia, irregular rumination / Moderate fever / Respiratory, pulmonary and pleurotic symptoms: polypnea, characteristic attitude (elbows abducted, head extended, arched back), cough (at first dry, slight and not fitful, becoming moist). At percussion, dull sounds can be noticed in the low areas of the thorax / Polyarthritits in young animals. b) <u>Hyperacute forms</u> → The clinical signs observed are much accelerated. Affected animals may die within a week exhibiting classical respiratory signs. c) <u>Subacute/Chronic forms</u> → Slight cough only noticeable when animal is exercised / Recurrent low-grade fever.	
<b>Post mortem findings</b> <ul style="list-style-type: none"> <li>• Important amount of yellow or turbid exudes in pleural cavity that coagulates to form large fibrinous clots.</li> <li>• Fibrinous pleurisy: thickening and inflammation of the pleura with fibrous deposits.</li> <li>• Interlobular oedema, marbled appearance due to hepatisation and consolidation at different stages of evolution usually confined to one lung.</li> <li>• Sequestrae with fibrous capsule surrounding grey necrotic tissue in recovered animals</li> </ul>	



<b>Diagnosis</b> a) Identification of the agent: Culture / Immunobinding (MF-dot) / PCR / Immunohistochemistry (IHC) b) Serological test: Complement fixation test (CFT) / Competitive ELISA / Latex Agglutination test (LAT) / Immunoblotting test (IBT)
<b>Material required for laboratory analysis</b> <ul style="list-style-type: none"><li>• Live animal: nasal swabs and secretions, tracheal and bronchoalveolar washes, pleural fluid. Blood should be collected for sera.</li><li>• Dead animal: lung lesions, pleural fluids, lymph nodes, lung tissue-exudate, joint fluid.</li></ul>
<b>OIE Reference Laboratories in Europe</b> <ul style="list-style-type: none"><li>• <b>Dr F. Poumarat (1)</b> AFSSA Lyon, Laboratoire de pathologie bovine 31 avenue Tony Garnier, BP 7033, 69342 Lyon Cedex 07 FRANCE Tel: (33 (0)4) 78.72.65.43 Fax: (33 (0)4) 78.61.91.45 Email: <a href="mailto:f.poumarat@lyon.afssa.fr">f.poumarat@lyon.afssa.fr</a></li><li>• <b>Dr Ana Rosa Pombo Botelho</b> Laboratório Nacional de Investigação Veterinária (LNIV) Estrada de Benfica 701, 1500 Lisboa PORTUGAL Tel: (351.21) 711.53.33/39/40 Fax: (351.21) 711.52.36 Email: <a href="mailto:ana.botelho@lniv.min-agricultura.pt">ana.botelho@lniv.min-agricultura.pt</a></li><li>• <b>Dr A. Pini</b> CESME, Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale' Via Campo Boario, 64100 Teramo ITALY Tel: (39.0861) 33.24.81 Fax: (39.0861) 33.22.51 Email: <a href="mailto:a.pini@izs.it">a.pini@izs.it</a></li><li>• <b>Dr F. Thiaucourt (2)</b> UMR15 CIRAD-INRA, Control of exotic and emerging animal diseases Campus international de Baillarguet TA A-15/G, 34398 Montpellier Cedex 5 FRANCE Tel: (33(0)4) 67.59.37.24 Fax: (33(0)4) 67.59.37.98 Email: <a href="mailto:françois.thiaucourt@cirad.fr">françois.thiaucourt@cirad.fr</a></li></ul>
<b>Relevant diagnostic laboratories</b> Centre de coopération internationale en recherche agronomique pour le développement Département d'élevage et de médecine vétérinaire CIRAD-EMVT Campus international de Baillarguet, BP 5035, 34032, Montpellier Cedex 1 FRANCE (World Reference Laboratory)
<b>Treatment</b> No efficient treatment. Antimicrobial therapy (streptomycin, oxytetracycline, fluoroquinolones, chloramphenicol) may only serve to slow the progression of the disease or may even in some cases favour the formation of sequestra.
<b>Prevention and control in zoos</b> <ul style="list-style-type: none"><li>• Maintain sufficient regulatory restrictions to prevent the introduction of CBPP in apparently healthy animals. Serologic testing (complement fixation) of susceptible animals for importation and quarantine in an isolated area.</li><li>• In an outbreak situation, testing, slaughtering of all animals of the herd in which positive animals have been found and quarantine would be the methods of choice.</li></ul>
<b>Suggested disinfectant for housing facilities</b> Formaldehyde solution (0,5% - 30 seconds)
<b>Notification</b> CBPP is the only bacterial disease of the list A (OIE)
<b>Guarantees required under EU Legislation</b> EU Directive 82/894
<b>Guarantees required by EAZA Zoos</b>
<b>Measures required under the Animal Disease Surveillance Plan</b>

**Measures required for introducing animals from non-approved sources****Measures to be taken in case of disease outbreak or positive laboratory findings****Conditions for restoring disease-free status after an outbreak**

The International Health Code 2000 of the OIE describes the following requirements for declaration of freedom from CBPP:

- freedom from clinical CBPP for at least 2 years earlier
- a programme of abattoir surveillance in place for at least 4 years
- diagnostic procedures for CBPP in use to investigate respiratory diseases
- surveillance programmes including serological, pathological and microbiological test, for at least 3 years

**Contacts for further information****References**

1. OIE (2002) Disease Status Information, handistatus, <http://www.oie.int/>
2. OIE (1997) Recommended standards for epidemiological surveillance systems for CBPP. *Rev. Sci. Tech., Off. Int. Epiz.*, 16:898-904
3. Report of the Scientific Committee on Animal Health and Animal Welfare. Diagnostic Tests for Contagious Bovine Pleuropneumonia (CBPP). 17 Octobre 2001. European Commission
4. Mycoplasma of ruminants: pathogenicity, diagnostics, epidemiology and molecular genetics Editors: Leori, G., Santini, F., Scanziani, E., Frey, J. 1998 Report nr. EUR 18018 En nr 2, European Commission, Luxembourg
5. Contagious bovine pleuropneumonia (Regalla, J., ed.) 1990 Doc. Nr. EUR 12065 EN, Commission of the European Communities, Luxembourg
6. Martel, J.L., Perrin, M., Belli, P., Froget, F.J. (1983) The clinical aspects of Contagious Bovine Pleuropneumonia In The diagnosis of contagious bovine pleuropneumonia and other infections with *Mycoplasma mycoides* subsp. *mycoides*, (Ed. Hall, S.A.), Rep. N° EUR 8654, European Commission, Luxembourg, pp 4-7
7. Regalla, J., Caporale, V., Giovanni, A., Santinin, F., Martel, J.L., Penha Goncalves., A. (1996). Manifestation and epidemiology of contagious bovine pleuropneumonia in Europe. *Rev. Sci. Tech., Off. Int. Epiz.*, 15:1309-1325
8. Ter Laak, E.A. (1992). Contagious bovine pleuropneumonia. A review. *Vet. Q.*, 14:104-110
9. Whithear, K. 2001. Diseases to mycoplasmas. *In: Infectious diseases of Wild Mammals*, third edition. Eds: Williams E.S and Barker I.K.. Mason Publ. London, pp 396-412.