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**Pleuroneumonía
contagiosa bovina**

CBPP




Contagious bovine pleuropneumonia (CBPP) is a contagious respiratory disease of cattle, water buffalo, bison and yak.

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Panorama general

- Causa
- Impacto económico
- Distribución
- Transmisión
- La enfermedad en los animales
- Prevención y control



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In today's presentation we will cover information regarding the organism that causes contagious bovine pleuropneumonia (CBPP) and its distribution. We will also talk about the economic impact the disease has had in the past and could have in the future. Additionally, we will talk about how it is transmitted and what the disease looks like in animals. Finally, we will address prevention and control measures for the disease if contagious bovine pleuropneumonia is suspected.

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La causa

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**Pleuroneumonía contagiosa
bovina (CBPP)**

- Ocasionada por bacterias
- Extremadamente infecciosa en bovinos
 - Ocasiona enfermedad pulmonar
 - Algunas veces causa enfermedad de las articulaciones
- Los hospederos naturales son los bovinos y cebúes



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Bacteria are the causative agent of contagious bovine pleuropneumonia (CBPP). CBPP is extremely infectious in cattle, and causes lung and occasionally joint disease. The genus *Bos* including bovine (top photo) and zebu (a group of breeds of humped cattle found in India, East and West Africa, and Southeast Asia; bottom photo) cattle are the main hosts for CBPP. European breeds seem to be more susceptible than African breeds, and 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. Wild cattle and camels are resistant. Photos courtesy of www.carmenaquarterhorses.com.

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Importancia

CBPP is a threat to the U.S. because American livestock are naïve and it could have a huge economic impact.

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| S l i d e 6 | <p style="text-align: center;">Antecedentes históricos</p> <ul style="list-style-type: none"> • 1693: Primer caso reportado de CBPP <ul style="list-style-type: none"> – Alemania; propagación por toda Europa – Ingresa a EE.UU. en una vaca lechera proveniente de Inglaterra • 1884: la CBPP se propaga en EE.UU. <ul style="list-style-type: none"> – El gobierno federal crea el Bureau of Animal Industry para combatir la CBPP • 1887: Se da inicio a la cuarentena y al sacrificio • 1893: La CBPP queda erradicada de EE.UU. <p style="text-align: right; font-size: small;">Center for Food Security and Public Health Iowa State University 2006</p> | <p>The first reported case of CBPP was in 1693 in Germany. The disease then spread from Germany all over Europe, and eventually made its way into the U.S. via a dairy cow coming from England. By 1884, CBPP was so widespread and devastating that the Federal Government established the Bureau of Animal Industry (the forerunner of the USDA's APHIS, Animal and Plant Health Inspection Service) in attempt to rid the country of the disease. The first intensive campaign to control an animal disease by quarantine and slaughter began in 1887 with CBPP, and the disease was successfully eradicated from the U.S. in 1893.</p> |
| S l i d e 7 | <p style="text-align: center;">Impacto económico</p> <ul style="list-style-type: none"> • Países con elevada incidencia de CBPP <ul style="list-style-type: none"> – Zambia, Tanzania, Botswana – Ya de por sí en situación económica desesperada – Elevado impacto económico y social • Rápida propagación de la enfermedad <ul style="list-style-type: none"> – Los programas de vacunación se han reducido – Sequía • Amenaza para el bienestar social y la supervivencia <p style="text-align: right; font-size: small;">Center for Food Security and Public Health Iowa State University 2006</p> | <p>CBPP spreads rapidly and can cross international borders. In countries that still have a high incidence of CBPP, such as Zambia, Tanzania and Botswana, the social and economic impact of the disease is substantial. With the difficult economic situation these countries already face, vaccination programs for CBPP have been reduced. In addition, drought conditions have led to the increased movement of animals, resulting in rapid spread of the disease throughout Africa. Depending on the country, farmers may not be compensated for their lost livestock, which threatens not only their livelihood but also their social well-being (Zambia), and even their survival (Botswana).</p> |
| S l i d e 8 | <p style="text-align: center;">Distribución</p> | <p>Next, we will discuss where CBPP is found and how severely it affects animals with the disease.</p> |
| S l i d e 9 | <p style="text-align: center;">Distribución geográfica</p>  <p style="text-align: right; font-size: small;">Center for Food Security and Public Health Iowa State University 2006</p> | <p>Contagious bovine pleuropneumonia is always present to a certain extent in Africa (shown in blue), and new cases occur at a high rate in Zambia, Tanzania, and Botswana (red). There are fewer cases in Spain, Portugal, Italy, the Middle East, India, and China (yellow), and it has been eradicated from the Western hemisphere, the UK and Australia (green).</p> |
| S l i d e 10 | <p style="text-align: center;">Enfermedad/muertes</p> <ul style="list-style-type: none"> • Enfermedad <ul style="list-style-type: none"> – Aumenta con el confinamiento estrecho – Puede alcanzar el 100% en hatos susceptibles • Tasa de mortalidad <ul style="list-style-type: none"> – Varía entre 10 y 70% – La nutrición deficiente y los parásitos influyen en la gravedad • Algunos animales son portadores <ul style="list-style-type: none"> – Los animales que recobraron la salud son capaces de contagiar la CBPP a otros bovinos sin estar ellos mismos enfermos <p style="text-align: right; font-size: small;">Center for Food Security and Public Health Iowa State University 2006</p> | <p>Rates of sickness and death vary greatly for CBPP. Breed susceptibility, general health and management systems all influence the severity of infection. The chance of sickness increases with close confinement, and can reach 100% in susceptible herds. Death rate ranges from 10-70% and can be affected by secondary factors in overall health, such as poor nutrition and a parasite burden. Of recovered animals, as many as 25% may be carriers (recovered animals capable of giving CBPP to other cattle without being sick themselves).</p> |

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Transmisión

Propagación de la bacteria

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Transmisión a los animales

- Por aerosol
 - Principal vía de transmisión
 - Respiración de gotas infectadas emitidas por un animal que tose
- Por contacto directo
 - La introducción de un portador es la causa más común de los brotes
 - Se sabe que ha ocurrido la transmisión de la infección de la vaca a su becerro nonato

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CBPP is transmitted primarily two different ways or routes. One is by aerosol transmission. Close proximity is necessary for transmission, which occurs primarily through breathing in infected droplets from a coughing animal. The second route is direct contact. Direct contact by the introduction of a carrier animal into a susceptible herd is the most common cause of outbreaks. Infection from the cow to the unborn calf has been known to occur.

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Animales con CBPP

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Síntomas clínicos: infecciones agudas

- Lapso de tiempo desde la exposición hasta la aparición de síntomas de la enfermedad: de 10 días a 6 meses
- Primeros síntomas
 - Falta de energía, falta de apetito, fiebre, tos
 - Aumento del ritmo respiratorio
 - Gemido al exhalar



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The period of time from exposure to showing signs of sickness (incubation period) is highly variable, ranging from 10 days to six months. The time it takes to become ill depends primarily on how healthy the animal was to begin with. In adult animals, loss of energy, lack of appetite, fever (up to 107°F), and a drop in milk production are the first signs of CBPP. Early signs are followed by a cough which becomes moist if the animal is forced to move quickly. The signs progress to include pain in the chest, difficulty breathing, an increased breathing rate (up to 55 respirations per minute; normal is ~20 RPM), moaning while exhaling and reluctance to move. The photo depicts a coughing animal with neck extended (source: Foreign Animal Diseases: The Gray Book, http://www.vet.uga.edu/vpp/gray_book/FAD/).

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Síntomas clínicos: infecciones agudas

- Cuello extendido al toser
- Cambio de postura
 - Cuello hacia adelante
 - Patas separadas
 - Codillos hacia afuera



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A common clinical finding in an animal infected with CBPP is the neck outstretched when the animal is coughing as depicted in the photo. Also, it demonstrates that when the animal is standing, the usual posture is with the neck forward, the legs placed far apart, and the elbows turned out. Photo courtesy of www.fao.org.

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**Síntomas clínicos:
Infecciones crónicas**

- Síntomas de neumonía menos evidentes
 - Tos al hacer ejercicio
 - Pérdida extrema de peso; fiebre leve recurrente
 - Recuperación de la salud varias semanas después
- Becerros infectados al nacer
 - Artritis en varias articulaciones
 - Pueden no mostrar síntomas de neumonía
- Animales aparentemente saludables pueden propagar la CBPP

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Animals that stay sick for long periods of time (chronic) have less obvious signs of pneumonia, but may cough with exercise. These animals are often thin due to extreme weight loss and may have a recurrent mild fever. They may appear to recover after several weeks. Calves born with infection commonly have arthritis in several of their joints with or without pneumonia. Joints may be warm and swollen and extremely painful. Animals that do not show signs of illness may still spread CBPP to other cattle.

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**Síntomas clínicos:
infecciones crónicas**

- Abatidos
- Renuentes a moverse
- Delgados



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Animals chronically infected with CBPP are often very thin and depressed, as shown above. They also may be reluctant to move. Photo courtesy of APHIS-USDA at www.aphis.usda.gov

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Medidas a seguir

Pónganse en contacto con su médico veterinario

Detengan toda movilización de animales

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If you suspect a case or outbreak of CBPP, contact your veterinarian immediately and stop all animal movement.

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La CBPP en los seres humanos

- La pleuroneumonía contagiosa bovina no produce enfermedad en los seres humanos

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Humans are not susceptible to contagious bovine pleuropneumonia infection.

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Prevención y control

There are various prevention and control methods that can be applied to CBPP and those will be discussed here.

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Prevención

- Detengan toda movilización de animales
- No permitan que ningún animal sea retirado o devuelto a sus predios

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To prevent CBPP from entering your farm, all animal movement on and off your premise must be stopped.

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Control

- Cuarentena dentro de la explotación a los animales expuestos
- Sacrificio de bovinos infectados y expuestos
- Las bacterias están presentes en saliva, orina, membranas fetales, descargas uterinas
- Contaminan el alimento, el agua y el medio ambiente
- Deshacerse adecuadamente de los animales y material contaminados



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As soon as an outbreak is suspected, animals that were exposed to animals with CBPP must be quarantined. Infected and exposed animals will likely be slaughtered. Bacteria are present in saliva, urine, fetal membranes, and uterine discharges which may contaminate feed, water or the environment. The animals and contaminated materials will need to be disposed of properly. Photo depicts a quarantine of a livestock farm, courtesy of Katie Steneroden, ISU.

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Control

- No se recomienda aplicar un tratamiento
 - En general los antibióticos no son eficaces
 - Puede resultar imposible eliminar las bacterias
 - Puede ocasionar daño extensivo a los tejidos
- Es posible que aparezcan portadores
 - Aparentemente sanos
 - Capaces de transmitir la CBPP a otros animales
- No se recomienda la vacunación

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Treatment is recommended only in regions where CBPP is always present (endemic). Antibiotic treatment is generally not effective because it does not entirely eliminate the bacteria and may result in extensive tissue damage. The bacteria can remain in some animals (carriers) even though they appear healthy. They are capable of giving the disease to other animals. Vaccination is only recommended in countries where CBPP is always present- which does not apply to the U.S. The vaccine is not very effective and has adverse reactions.

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Control

- Limpian extensamente
- Desinfecten el sitio, los equipos y las instalaciones infectados
- Hipoclorito de sodio (blanqueador doméstico)



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Clean extensively because the bacteria that cause CBPP may survive for a few days in the environment. Be sure to disinfect the entire premises including all equipment and facilities. Sodium hypochlorite (household bleach) may be used, and is prepared by adding 2 gallons bleach to 3 gallons water. Photo shows a typical disinfectant.

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Recursos adicionales

- Center for Food Security and Public Health
 - www.cfsph.iastate.edu
- Sitio Web de la Organización de las Naciones Unidas para la Agricultura y la Alimentación (FAO)
 - www.fao.org
- Foreign Animal Diseases, The Gray Book
 - www.vet.uga.edu/vpp/gray_book/FAD
- Sitio Web de USDA-APHIS
 - www.aphis.usda.org
- Sitio Web de la Organización Mundial de Sanidad Animal (OIE)
 - www.oie.int

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