



ANTHRAX

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Primarily ruminants, man, <i>Pan troglodytes</i> .	Contact (wound infection), aerogenously, perorally	In chimpanzees: sudden weakness, vomiting, rapid death.	Yes.	Antibiotics (Penicillin, tetracyclin).	<i>In houses</i> <i>in zoos</i>

Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen/Germany.	Last update 22.11.2008
Susceptible animal groups Primarily ruminants, occasionally other animals, man, Observed in wild-living chimpanzees in Sierra Leone, Cotê d' Ovoire ,Cameroon and the Republic of Congo, wild living <i>Gorilla gorilla gorilla</i> in Cameroon.	
Causative organism <i>Bacillus anthracis</i> .DNA-analyses suggest genomic differences between the strains of the apes and those of other animals	
Zoonotic potential Yes	
Distribution Cosmopolitan, anthrax enzootics in Wildlife in Namibia, Botswana, Simbabwe	
Transmission percutaneous, perorally (soil contaminated by <i>B. anthracis</i> spores), aerogenously	
Incubation period 3 – 5 days	
Clinical symptoms In chimpanzees sudden weakness, vomitus., death within hours. In man: cutaneous ulcers (pustula maligna), intestinal anthrax, pulmonary anthrax	
Post mortem findings In chimpanzees: haemorrhages in all organs, pulmonary edema. In experimentally aerosol-infected cynomolgus monkeys haemorrhagic-edematous mediastinitis, histologically characterized by lymphocytolysis in intrathoracic lymph nodes and spleen. In ruminants : splenomegaly with deep-purple discoloration, lacking, blood clotting, haemorrhages.	
Diagnosis Blood smears (capsule stains, e.g. FOTH),cultivation (head of medusa on blood agarose), Ascoli-reaction, PCR. Fluorescence assays using <i>B.anthraxis</i> cell wall and capsule antigens	
Material required for laboratory analysis	

**OIE Reference Laboratories**

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Relevant diagnostic laboratories

Local veterinary laboratories

Treatment

Penicillin, tetracyclin as antibiotics, chloroquine suggested for antitoxic treatment.

Prevention and control in zoosVaccination: 0.3 ml spore vaccine in *M.mulatta*.**Suggested disinfectant for housing facilities**

Heat (120°C, 3 min).

Notification

In Germany :State Veterinarian according to §1 "Verordnung über anzeigepflichtige Tierseuchen, 3.Nov. 2004".

Guarantees required under EU Legislation**Guarantees required by EAZA Zoos****Measures required under the Animal Disease Surveillance Plan****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****Experts who may be consulted****References**

1. Anon. 2004. Namibia. Info Dienst Reisemedizin aktuell 19 : 10.
2. Anon. 2004. Botsuana. Info Dienst Reisemedizin aktuell 19 : 1
3. Anon. 2004. Simbabwe. Info Dienst Reisemedizin aktuell 18: 13.
4. Anon. 2004. Reintroduced gorillas: reproduction, ranging and unresolved issues. *Gorilla J.* 32: 28 – 30.
5. De, B. K., S. L. Bragg, G.N. Sanden, K. E. Wilson, L. A. Diem, C. K. Marston, A. R. Hoffmaster, G. A. Barnett, R. S. Weyant, T. G. Abshire, J. W. Ezzell, and T. Popovic (2002). Two - component direct fluorescent – antibody assay for rapid identification of *Bacillus anthracis*. *Emerg. Infect. Dis.* 8 : 1060 – 1065.
6. Leendertz, F., H. Ellerbrok, C. Boesch, E. Couacy – Hymann, K. Maetz – Rensing, R. Hagenbeck, C. Bergmann, P. Abaza, S. Junglen, Y. Moebius, L. Vigilant, P. Formenty, and G. Pauli. 2004. Anthrax kills wild chimpanzees in a tropical rainforest. *Nature* 430 : 451 – 452.
7. Leendertz, F. H., F. Lankester, P. Guislain, C. Neel, O. Drori, J. Dupain, S. Speede, P. Reed, N. Wolfe, S. Loul, E. Mpoudi – Ngole, M. Peeters, C. Boesch, G. Pauli, H. Ellerbrok, and E. M. Leroy. 2006. Anthrax in Western and Central African great apes. *Am. J. Primatol.* 68 : 928 – 933.
8. Leendertz, F. H., S. Yumlu, G. Pauli, C.Boesch, E. Couacy-Hymann, L. Vigilant, S. Junglien, S. Schenk, and H. Ellerbrok. (2006). A new bacillus anthracis found in wild chimpanzees and a gorilla from West and Central Africa. *PLoS Pathogens* 2 : 1 ; Ref.: Lab. Prima. Newsl. 45, (2): 29.



9. Rietschel, W., and J. Senn. 1977. Bekaempfung von Milzbrand im Zoologischen Garten Kabul durch Einsatz von Lebendvakzine. Tierarztl. Umsch. 32 : 36 – 43.
10. Vasconcelos, D., R. Barnewall, M. Babin, R. Hunt, J. Estep, C . Nielsen, R. Carnes, and J. Carney (2003). Pathology of inhalation anthrax in cynomolgus monkeys (*Macaca fascicularis*). Lab.Invest.. 83 : 1201 – 1203.