



## Encephalomyocarditis (EMC)- Virus Disease

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Simiae Prosimiae	Perorally (food,water), diaplacental	Sudden death, tachycardia	Yes – in nonhuman primates		<i>In houses</i> Rodent control  <i>in zoos</i> Rodent control, prevention of contacts with infected persons or animals

<b>Fact sheet compiled by</b> Manfred Brack, formerly German Primate Center, Göttingen/Germany.	<b>Last update</b> 22.11.2008
<b>Susceptible animal groups</b> Primarily Suidae, but also Camelidae, rodents, elephants, Hippopotamidae, kangaroos, nonhuman primates.	
<b>Causative organism</b> Encephalomyocarditis-Virus (Picornaviridae, Cardioviruses).	
<b>Zoonotic potential</b> Yes.	
<b>Distribution</b> Worldwide, particularly in Southern USA.	
<b>Transmission</b> Fecal excretion, peroral infection through food or water. In baboons transplacental infection possible.	
<b>Incubation period</b> In experimental infections of rodents 4 – 41 days.	
<b>Clinical symptoms</b> Usually sudden death from congestive cardiac failure. Otherwise sluggishness, anorexia, tachycardia, paralysis, convulsions.	
<b>Post mortem findings</b> Cardiomegaly, Myocarditis, myocardial necrosis, ascites, pleural and pericardial effusions, pulmonary oedema.	
<b>Diagnosis</b> Tissue culture, immunomagnetic separation and one step RT-PCR, Serology: HI-tests.	
<b>Material required for laboratory analysis</b> Altered tissues, faecal samples.	
<b>Relevant diagnostic laboratories</b> The Simian Diagnostic Laboratory at Virus Reference Laboratories, Inc. 7540 Louis Pasteur Road SAN ANTONIO /Tx. 78229 Tel.: (210) 614 – 7350 Fax (210) 614 - 7355	
<b>Treatment</b>	
<b>Prevention and control in zoos</b> Rodent Control. Vaccination (B-propiolactone – killed EMC-virus, genetically engineered Mengo-Virus.	
<b>Suggested disinfectant for housing facilities</b>	
<b>Notification</b>	



<b>Guarantees required under EU Legislation</b>
<b>Guarantees required by EAZA Zoos</b>
<b>Measures required under the Animal Disease Surveillance Plan</b>
<b>Measures required for introducing animals from non-approved sources</b>
<b>Measures to be taken in case of disease outbreak or positive laboratory findings</b>
<b>Conditions for restoring disease-free status after an outbreak</b>
<b>Experts who may be consulted</b>
<b>References</b> <ol style="list-style-type: none"><li>1. Backues, K. A., R. F. Aguilar, M. Hill, A. C. Palmenberg, and K. F. Soike. 1997. A new modified liove virus vaccine for encephalomyocarditis (EMC) virus protection , preliminary trials at the Audubon Zoo. Am. Assoc. Zoo Vet. Annu. Conf. Proc. 1997 : 166 – 167.</li><li>2. Backues, K. A., M. Hill, A. C. Palmenberg, C. Miller, K. F. Soike, abd R. Aguilar. 1999. Genetically engineered mengo virus vaccination of multiple captive wildlife species. J. Wildl. Dis. 35 : 384 – 387.</li><li>3. Blanchard, J. L., K. Soike, and G. B. Baskin. 1987. Encephalomyocarditis virus infection in African green and squirrel monkeys : Comparison of pathologic effects. Lab. Anim. Sci. 37 : 635 – 639.</li><li>4. Brack, M. 1987. Agents Transmissible from Simians to Man. Springer, Berlin.</li><li>5. Carey, K. D., G. B. Hubbard, K. Soike, J. Levin, and T. M. Butler. 1988. An encephalomyocarditis virus epizootic in a baboon colony. Lab. Anim. Sci. 88 : 493.</li><li>6. Citino,, S. B., B. L. Homer, J. M. Gaskin, and D. J. Wickham. 1988. Fatal encephalomyocarditis virus infection in a Sumatran orangutan ( <i>Pongo pygmaeus abeli</i> ). J. Zoo Anim. Med. 19 : 214 – 218.</li><li>7. Emerson, C. C., and J. L. Wagner. 1996. Antibody responses to two encephalomyocarditis virus vaccines in rhesus macaques ( <i>Macaca mulatta</i> ). J. Med. Primatol. 25 : 42 – 45.</li><li>8. Gutter, A.,E. 1993. Encephalomyocarditis in zoo animals. In Fowler, M. E. Zoo and Wild Animal Medicine . Current Therapy 3. W. B. Saunders, Philadelphia. Pp 50 – 51.</li><li>8 Hubbard, G. B., K. F. Soike, T. M. Butler, K. D. Carey, H. Davis, W. I. Butcher, and C. J. Gauntt.. 1992. An encephalomyocarditis virus epizootic in a baboon colony. Lab. Anim. Sci. 42 : 233 – 239.</li><li>9 Kassimi, L. B., M. Gonzague, A. Boutrouille, and C. Cruciere. 2002. Detection of encephalomyocarditis virus in clinical samples by immunomagnetic separation and one – step RT-PCR. J. Virol. Methods 101 : 197 – 206.</li><li>10 Osorio, J. E., G. B. Hubbard, K. F. Soike, M. Girard, S. van der Werf, J. – C. Moulin, and A. C. Palmenberg. 1996. Protection of non – murine mammals against encephalomyocarditis virus using a genetically engineered Mengo virus. Vaccine 14 : 155 – 161.</li><li>11 Wells, S. K., A. E. Gutter, K. F. Soike, and G. B. Baskin. 1989. Encephalomyocarditis virus : Epizootic in a zoological collection. J. Zoo Wildl. Med. 20. 291 – 296.</li></ol>