

## LUMPY SKIN DISEASE (LSD)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE?	TREATMENT	PREVENTION & CONTROL
cattle	- insects - (contact)	- fever - skin nodules - swollen lymph nodes - (systemic reactions)	No	None available	<i>In houses</i>  <i>In zoos</i> avoid contact with insect vectors, vaccination

<b>Fact sheet compiled by</b> S. Geerts, Institute of Tropical Medicine, Antwerp, Belgium	<b>Last update</b> January 2009
<b>Fact sheet reviewed by</b> F. Vercammen, Royal Zoological Society of Antwerp, Belgium J. Brandt, Institute of Tropical Medicine, Antwerp	
<b>Susceptible animal groups</b> Cattle are the only susceptible animals. LSD has not been reported as a natural infection in wildlife. Giraffe and impala died after experimentally infection, whereas buffalo and gnu were refractory. Some suspected cases have been reported in wild animals in captivity (i.a. <i>Oryx leucoryx</i> )	
<b>Causative organism</b> The LSD virus belongs to the genus Capripoxvirus (family Poxviridae). It is a double-stranded DNA virus, which is closely related to the capripoxvirus, which causes sheep and goat pox. The virus is relatively heat stable, very resistant to cold, but not very resistant to light.	
<b>Zoonotic potential</b> The LSD virus is not infective to man.	
<b>Distribution</b> Currently, LSD is present in sub-Saharan Africa and Egypt.	
<b>Transmission</b> Transmission is mainly indirect through insects such as <i>Stomoxys calcitrans</i> and <i>Musca confisicata</i> The main vectors are still unknown. Direct transmission is also possible through saliva, milk, sperm, or through contact with lesions of infected animals.	
<b>Incubation period</b> The incubation period is 2 to 4 weeks.	
<b>Clinical symptoms</b> Fever, skin nodules (0.5 to 5 cm diameter) and swollen superficial lymph nodes are symptoms, which are present in most of the animals. Nodules affect the whole skin and the subcutaneous tissue. They can also affect the nasal, oral, ocular and genital mucosae. Their number may range from a few to several hundred. Skin lesions either resolve rapidly, or indurate and persist as hard lumps ('siffasts') or become sequestered to leave deep ulcers partly filled with granulation tissue, which often suppurates. Systemic reactions such as depression, anorexia, lameness, agalactia, temporary infertility or emaciation are not always present. Morbidity is highly variable. Mortality is usually low (< 10 %).	
<b>Post mortem findings</b> Nodules are present which involve all layers of the skin, the subcutaneous tissue and sometimes the adjacent musculature. Nodular lesions or ulcers are found on various mucous membranes and in some organs (particularly the lungs) and in the upper respiratory and digestive tracts. The lymph nodes of the affected areas are enlarged.	
<b>Diagnosis</b> A tentative diagnosis may be based on the sudden appearance of skin nodules, especially during the wet season after heavy rains together with the presence of large numbers of insects. <ol style="list-style-type: none"> <li>1. <u>Identification of the agent</u> <ol style="list-style-type: none"> <li>a) electron microscopic demonstration of virus in biopsy specimens</li> <li>b) cell culture and subsequent serological testing (immunofluorescence or ELISA)</li> <li>c) PCR using biopsy samples</li> </ol> </li> <li>2. <u>Serological methods</u>: specific antibodies in serum can be detected using immunofluorescence, ELISA or virus neutralisation test. An antigen-trapping ELISA is also available.</li> </ol>	

**Material required for laboratory analysis**

Skin biopsies or skin lesions from dead animals.

**OIE Reference Laboratories**

- **Dr G.H. Gerdes**  
Onderstepoort Veterinary Institute  
Private Bag X05, Onderstepoort 0110  
SOUTH AFRICA  
Tel: (27.12) 529.91.14 Fax: (27.12) 529.94.18  
Email: [oneillm@arc.agric.za](mailto:oneillm@arc.agric.za)
- **Dr Eeva Tuppurainen**  
Institute for Animal Health, Pirbright Laboratory  
Ash Road, Pirbright, Woking, Surrey GU24 0NF  
UNITED KINGDOM  
Tel: (44.1483) 23.24.41 Fax: (44.1483) 23.24.48  
Email: [eeva.tuppurainen@bbsrc.ac.uk](mailto:eeva.tuppurainen@bbsrc.ac.uk)

**Treatment**

Today an effective etiological treatment is not available. Antibiotic therapy may avoid secondary bacterial infection.

**Prevention and control in zoos**

Effective homologous or heterologous (sheep pox) live attenuated vaccines are available, which give a long lasting (probably life long) immunity. The latter vaccine should not be used in countries free from sheep and goat pox.

**Suggested disinfectant for housing facilities**

Phenol 2%

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

1. Coetzer, J.A.W. 2004. Lumpy skin disease. In: Infectious diseases of livestock (Eds. Coetzer, J.A.W. & Tustin, R.C.). Oxford University Press, Cape Town, 2nd ed., vol.2., 1268-1276.
2. Davies, F.G. 1992. La dermatose nodulaire. Une infection à capripoxvirus des bovins d'Afrique. FAO, Rome, 61 pp.
3. Hunter, P. and Wallace, D. 2001. Lumpy skin disease in southern Africa: a review of the disease and aspects of control. *Jl S Afr vet Ass* 72: 68-71