

Updated COVID-19 Considerations for Facilities Caring for Snow Leopards

Information Compiled by the Snow Leopard Veterinary Advisory Group

At this time, the Snow Leopard Veterinary Advisory Group is recommending that institutions consider the following:

1. Vaccination of snow leopards with the [Zoetis](#) animal vaccine is available free of charge for zoo animals
 - Contact John Hardham of Zoetis:
 - Email: john.m.hardham@zoetis.com
 - Office Phone: 269-359-9211
 - Mobile Phone: 269-492-5253
 - **There are paperwork and reporting requirements associated with this vaccine distribution. Interested institutions are recommended to reach out to Zoetis as quickly as possible if vaccination is elected.**
2. Allowing only fully vaccinated staff to care for snow leopards or to access snow leopard holding areas
3. Where possible, limit overlap of staff that care for snow leopards and other susceptible species (particularly primates and other felids)
4. Staff that contact snow leopards should utilize the following PPE when working within 6 feet of felids, regardless of human vaccination status:
 - Disposable gloves for feeding and preparation of food and enrichment items
 - Well-fitting NIOSH-certified surgical face masks or N95 masks
5. When possible, perform diagnostic testing on snow leopards showing signs suggestive of SARS-CoV-2 in compliance with state animal and public health guidance
6. **Due to the apparent swift course of disease in reported cases, we strongly encourage rapid sharing of information on suspect or confirmed cases and pathology findings with the Veterinary Advisor Group: snow-leopard-health-advisors@googlegroups.com.**

Reported symptoms in snow leopards have included the following:

- Upper respiratory signs (coughing, sneezing, and/or oculonasal discharge)
- Decline in condition > 1 week after mild symptoms of malaise, decreased food intake, and/or upper respiratory signs
 - Several cases appeared to improve with initial supportive care (glucocorticoids, antibiotics, ondansetron), but then declined

- Acute disease course consisting of rapid onset dyspnea (approximately 72 hours) with upper and lower respiratory disease symptoms progressing to respiratory failure and death
- Profuse epistaxis, pulmonary hemorrhage, and anemia
- Diarrhea with melena or frank blood in the feces

Gross necropsy lesions of deceased snow leopards have included the following:

- Wet, heavy, mottled lungs with prominent interlobular septae
- Rhinitis and hemorrhage in the nares
- Diffuse ecchymoses and ulceration along the trachea
- Respiratory tract/pulmonary hemorrhage

Histology lesions of deceased snow leopards have included the following:

- Severe pulmonary interstitial and pleural edema with marked alveolar histiocytosis
- Marked airway epithelial necrosis at all levels of the respiratory tract
- Hyaline membrane formation and or abundant fibrin exudation
- Secondary bacterial and or fungal infection

Again, while detailed data is not available, these trends are concerning, and we feel it is important to alert holding institutions to the potential that SARS-CoV-2 may carry a higher risk for morbidity and mortality in snow leopards.

Thank you,
Snow Leopard Veterinary Advisors

Email for reaching all advisors at once: snow-leopard-health-advisors@googlegroups.com

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