

# RECOMMENDED PRESHIPMENT PROTOCOL FOR RHINOCEROSES

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The following list outlines recommended information that should be gathered before a rhinoceros is shipped to another institution. Whenever possible, animals should be trained to permit sampling and examination. Ideally, preshipment testing should be performed within 30-90 days of the anticipated date (note: mycobacterial cultures require 60 days for final results). The final decision for specific procedures should be made in partnership between the shipping and receiving institutions. Any abnormal findings should be communicated to the receiving institution in a timely manner.

1. Signalment: Age, sex, origin, studbook #, ISIS #.
2. Dietary history at the sending institution.
3. History:
  - a. Medical history and records
  - b. General history (captive born or wild-caught, etc.)
  - c. Reproductive history
4. Permanent identification:
  - a. Microchip? (if so, note location and number), consider placement if one is not present
  - b. Note any distinguishing physical characteristics.
5. Body weight (actual or estimated)
6. Physical examination: To include full visual examination, and if trained or anesthetized:
  - a. Thorough oral examination
  - b. Reproductive examination where possible
  - c. Careful examination of the feet.
7. Blood work: if trained or anesthetized:
  - a. CBC and blood chemistries
  - b. Serology:
    - i. Black rhinoceroses: leptospirosis titers (recommend Cornell University Diagnostic Lab, Upper Tower Road, Ithaca, NY 14853; 607-253-3900).
    - ii. All rhinos: WNV titers (recommend Cornell and/or TVMDL, 1 Sippel Road, College Station, TX 77843; 888-646-5623).
    - iii. Contact SSP veterinary advisor for additional recommendations on current testing protocols.
8. Fecal analyses:
  - a. Parasite screen: direct and flotation.
  - b. Enteric pathogen screen – Aerobic culture of feces for enteric pathogens should include special media for the detection of *Salmonella* spp. and other enteric pathogens (*Shigella*, *Campylobacter*). Since *Salmonella* organisms may be shed intermittently, a minimum of 3 cultures are recommended. PCR is also highly recommended in addition to culture on the same sample.
9. Other testing:
  - a. Tuberculosis:

- i. If at all possible, 0.1ml USDA PPD bovis ID in eyelid or ear base (not enough data exists to make definitive recommendations, however, in at least two cases, black rhinoceroses with confirmed TB were positive when tested in the eyelid).
  - ii. If a test is positive or suspicious, it should be followed by anesthesia for collection of tracheal and/or gastric lavage samples for acid-fast stain and mycobacterial culture.
  - iii. Serological testing of rhinoceros has been performed and although not validated, may also provide auxiliary diagnostic screening (ex. using the ElephantTB STAT-PAK, Chembio Diagnostic Systems, Inc.).
  - iv. It is important to know the TB history of the shipping collection (e.g., have they had mammalian TB in rhinoceroses or other mammalian species?).
  
- 10. Vaccinations: Rhinoceroses are not routinely vaccinated with the exception of:
  - a. annual vaccines for leptospirosis in black rhinoceroses and possibly for greater Asian one-horned rhinoceroses.
  - b. rabies, tetanus, arboviruses (EEE/WEE/WNV) if part of an institutional protocol
  - c. Check with SSP veterinary advisor and receiving institution for current recommendations on additional vaccinations.
  
- 11. Radiographs: Generally not applicable in rhinoceroses except when necessary for the diagnosis of lesions in the extremities.
  
- 12. Genetic and serum banking: Serum and/or plasma (heparinized plasma gives a better yield) should be collected and banked locally. Also check the **Veterinary/Nutrition Blood and Tissue Collection Protocol for Rhinoceros** at the AAZV website ([www.aazv.org](http://www.aazv.org)) for additional blood/tissue requests.
  
- 13. Transport:
  - a. Crates: Ideally, all rhinoceroses should be crate-trained to avoid the need for anesthesia when loading. Crates must be capable of withstanding charges and battering from an agitated rhinoceros. All wood construction must be reinforced with metal, and built to readily accept lifting with a forklift or crane.
  - b. Long-acting tranquilizers: Use of various tranquilizers is described in Chapter 55 of the 5<sup>th</sup> edition of Zoo and Wild Animal Medicine (W.B. Saunders Co., 2003) and in the Proceedings of the American Zoo Association of Veterinarians Workshop on Ultrasound in Rhinocerotidae.
  
- 14. Other
  - a. Consideration can be given to parenteral or oral supplementation with vitamin E (i.e. TPGS or micellized forms of alpha-tocopherol).

If post-shipment quarantine is not available or possible, then the rhinoceros should be trained or anesthetized at the shipping institution for all of the tests noted above.