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## SURVEY FOR *Salmonella* spp. IN CAPTIVE U.S. RHINOCEROSSES

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### Abstract

Seventy-two zoological institutions and private ranches in the United States were surveyed for *Salmonella* culture results. Fifty-nine responded (82% return rate) with seven positive culture results reported from 1990-1997. With prevalence defined as a positive culture result in this survey, a 12% prevalence for responders was established and a 10% prevalence if nonresponders are assumed negative. Seventeen *Salmonella* isolations were made from 16 different animals (ten black, four white, and two Indian rhinoceroses). Nine different serotypes were reported with an additional two identified to the group level. Five serotypes were isolated more than once and of these, four were isolated at the same institutions. Two institutions experienced epizootics in which multiple animals were affected clinically.

Presentations included: asymptomatic (6), diarrhea (8), reluctance to stand (4), septicemic (5), and death (6). Two of the animals were in quarantine and five recently moved prior to their illness. Disease duration ranged from 3 days-3.5 mo. Clinical pathology changes reported in domestic large animal salmonellosis include: elevated plasma fibrinogen and neutrophilia or neutropenia with left shift in severe cases.<sup>2</sup> Blood was obtained from five of the rhinos with clinical salmonellosis and demonstrated neutrophilia (2), lymphopenia (3), and degenerative left shifts (2). Two of these blood samples were obtained from moribund animals that died the same day as sample collection; these samples indicated hemoconcentration and one had evidence of prerenal azotemia.

Antibiotic treatment was attempted in six animals. Five received trimethoprim sulfa compounds (TMS) containing either sulfadiazine or sulfamethoxazole orally at 30 mg/kg every 12 or 24 hr.<sup>1</sup> Two animals, one of which was initially treated with TMS but became anorexic, were given ceftiofur i.m. (Naxcel, The Upjohn Co., Kalamazoo, MI 49001 USA).

Six of the rhinoceroses died with four deaths attributed directly to salmonellosis. The primary pathology observed was edema and hemorrhage of the affected bowel with overlying fibrinosuppurative and multifocal lymphoplasmacytic gastritis, enteritis, and colitis. Three of the salmonellosis deaths had signs and lesions compatible with septicemia, such as suppurative pneumonia, hepatitis, epicarditis, and omphalitis.

### LITERATURE CITED

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