

Animal Health Advisory
Multi-drug Resistant Salmonella in Horses

The NYS Veterinary Diagnostic Laboratory has isolated *Salmonella* Group C2 from cultures submitted from 4 different horse farms in either New Jersey or Pennsylvania in the last week. They have all shown the same profile, being resistant to most antibiotics. A *Salmonella newport* strain (Group C2) was recently associated with the closing of the University of Pennsylvania's large animal clinic, New Bolton Center, and was also reported to be multi-drug resistant.

Salmonellosis is a disorder of the gastrointestinal tract. Stress such as surgery, transportation, training, antibiotic therapy, or dietary changes can lead to its development. Symptoms are caused by toxins produced by the *Salmonella* species bacteria. Symptoms exhibited are usually one of four distinct types:

- 1) active carrier that appears normal
- 2) depression, fever, loss of appetite
- 3) severe case of colitis
- 4) septicemia with bone and joint infections

Transmission to other horses is by the oral route, entry through the umbilical stump in foals less than 30 days of age, or an open wound.

It is unknown how and when multi-drug resistant Group C2 *Salmonella* strains have emerged in the equine industry, or how widespread they are. It is believed that the extensive non-therapeutic use of antibiotics exposes too many pathogens to levels of antibiotic which then causes "hardy" strains to survive. At this point, the cultures received at the lab have all been from sick foals or from the environment in which sick animals with confirmed *Salmonella* cultures were housed. It is advised that equine operations be alert to the possible spread of these organisms. Illness can be difficult to treat, may be fatal, and the environment, once contaminated, may be difficult to clean up. Other livestock and companion animal species are also susceptible to infection. **Horse owners and caretakers should be alert to equine illnesses involving fever, diarrhea and colic, especially in foals, and call their veterinarian promptly.** Culture samples from all horses with such symptoms should be promptly submitted to the New York State Veterinary Diagnostic Laboratory at Cornell University for identification.

Since no commercially available vaccine exists against *Salmonella*, disinfection and other biosecurity practices must be utilized in order to prevent the introduction or the spread of this disease. Specific management practices to be used are outlined in the New York State Horse Health Assurance Program, a program designed to promote horse health, care, and welfare and to encourage horse owners to learn more about horse management. For more information regarding this program see the contact listed at the end of this article.

New arrivals and horses returning from off the farm should be isolated from other horses so that fecal-oral spread of these organisms can be controlled. If strict isolation is not possible, maintain closed groups with as small a number of animals per group as

possible. Since foals seem to be most susceptible, avoid combining mare/foal pairs with new arrivals. Shared pastures, paddocks and stalls can all promote transmission of these organisms as they survive in manure, manure contaminated soils and forages, and wet areas. Horse trailers should be thoroughly cleaned, disinfected and re-bedded prior to transport of different animals. Always provide clean, individual food and water buckets and tubs for your horses when they are away from home. Avoid contact with manure when visiting equine facilities, and wear footwear that can be cleaned and disinfected. Do not wear the same clothing and shoes while visiting other horse facilities that you wear when caring for animals at your home facility.

Environmental cleanup involves the removal of all organic material (bedding, contaminated feed, manure), complete washing down of all surfaces, including feed tubs, water buckets/tanks, and cleaning utensils with water and a detergent cleaner to remove remaining organic residues, and the application of an appropriate disinfectant for the proper contact time. Disinfectants used to combat *Salmonella* include chlorine bleach and quaternary ammonium compounds. Areas should be encouraged to dry quickly by using fans and exposing to sunlight, where possible. Pressure washers should be avoided, unless all animals have been removed and the operator wears OSHA-approved respirator protection, as *Salmonella* organisms can be aerosolized and spread this way. Environmental sampling can be used to determine if effective cleaning has been done in a facility with previously infected animals.

Finally, *Salmonella spp* have the potential of infecting people and can cause serious illness and death. Notify a physician or the local Health Department if animal caretakers show signs of gastroenteritis which can include any of the following signs: fever, vomiting, diarrhea with or without blood, and abdominal cramping. Individuals with weakened or suppressed immune systems, pregnant women, and the very young and very old are most susceptible to infection and illness with *Salmonella spp*.

For further information about the New York State Horse Health Assurance Program administered by the New York State Department of Agriculture and Markets/ Division of Animal Industry contact Dr. Lyda W. Denney at: lyda.denney@agmkt.state.ny.us or 315-829-4282.