

SCHOOL OF VETERINARY MEDICINE

PURDUE UNIVERSITY

Methicillin-Resistant *Staphylococcus aureus* (MRSA) policy for research animals

According to the American Animal Hospital Association (AAHA), “MRSA should be considered an important emerging nosocomial and zoonotic disease”. Methicillin-resistant *Staphylococcus aureus* refers to a strain of a Gram positive bacteria that has developed resistance to the antibiotic methicillin and other beta-lactam antibiotics including penicillins, cephalosporins, and carbapenems.¹ Other bacterial species can develop methicillin resistance. Some species include *Staphylococcus intermedius* (MRSI), *Staphylococcus pseudintermedius* (MRSP), and *Staphylococcus epidermidis* (MRSE). For the purpose of this policy, the term “MRS” will be used for all methicillin- resistant *Staphylococcus* species.

Methicillin-resistant *Staphylococcus* infections have been described in most species of animals. Common clinical presentations associated with MRS infection include pyoderma, otitis, and purulent wound infections including surgical site infections. Other presentations are reported, and animals may also be colonized (common sites are the nasal passages and gastrointestinal (GI) tract) without any clinical signs. There are multiple genetic types of MRS, and the epidemiology of MRS colonization and infection in veterinary species, including transmission of MRS among animal species and between human beings and animal species, is not well-defined. Transmission among animals by direct contact, via the hands of animal health care workers and other human beings, and by fomites have all been described. Animals colonized with MRS have been demonstrated to be at increased risk for development of surgical site infections, and nosocomial transmission of MRS in veterinary hospitals has been documented. While the duration of colonization of veterinary species requires further investigation, it is hypothesized that the duration of colonization varies with species and genetic type of MRS.

Indications for treatment and treatment protocols for animals are poorly defined. Treatment of healthy colonized animals is considered unnecessary and inappropriate in most instances. Treatment of such animals with antibiotics may result in development of further antibiotic resistance. Some researchers have suggested that many animals clear the colonized state within 6-8 weeks, making treatment unnecessary. Treatment of infected animals should be guided by the location and severity of infection and results of antibiotic culture and susceptibility testing.

Proper hand hygiene is of the utmost importance in decreasing the transmission of MRS to people and other animals. Since healthy animals may be inapparent carriers, and some infected animals do not have typical *S. aureus* lesions, all students, staff, and faculty entering animal rooms in VLAC facilities are required to wash their hands upon entering animal holding rooms, after handling each animal, and upon leaving the animal rooms.

The following policy was created to provide guidance for handling of research animals with MRS. This policy includes all research animals owned and housed by the SVM. Principle investigators will be responsible for all fees incurred during the testing and management of MRS suspect or infected animals. A related policy is in place for animals on teaching protocols.

- No animal with suppurative lesions or cellulitis upon arrival will be accepted by Veterinary Laboratory Animal Care (VLAC).
- If any Purdue SVM owned animal develops suppurative lesions, cellulitis or other lesions likely to be associated with MRS while housed at the SVM facilities, the following will be performed:
 1. A sterile sample will be taken from the lesions and submitted to the Animal Disease Diagnostic Laboratory (ADDL) for culture and susceptibility testing.
 2. A Clinical Activity Report (CAR) will be submitted to the Laboratory Animal Program (LAP) office.
 3. The principal investigator will be notified and a meeting scheduled to discuss the implications of a positive test for MRS, including animal handling and disposition, and costs associated with necessary testing and materials.
 4. Minimum precautions taken by VLAC personnel and required of all individuals working on the project/protocol will include standard precautions and barrier precautions such as wearing gloves and barrier gowns or dedicated scrubs or lab coat when handling the affected animal(s), and removing gloves and washing hands after handling each animal.
- If culture results are positive for MRS, and the PI retains the animal(s) in their studies, precautions in place for VLAC and other personnel handling the animal(s) will continue until all of the following conditions are met:
 1. Lesions have healed.
 2. Three successive cultures of lesions tested 1-3 days apart are negative.
- Testing animals for nasal or GI carriage of MRS is considered impractical in many species, and will be discussed for individual projects.
- MRSA positive research animals or those animals in direct contact with MRSA positive animals are ineligible for adoption