

Detection of methicillin-resistant *Staphylococcus aureus* in pig farms, farm employees and the farm environment in selected areas of Sri Lanka

**R.S. Kalupahana^{1*}, K.M. Verstappen², C.D. Gamage³, N. Dissanayake³,
L. Ranatunga¹ and J.A. Wagenaar^{2,4}**

¹*Department of Veterinary Public Health and Pharmacology, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Sri Lanka,* ²*Department of Infectious Diseases and Immunology, Utrecht University, The Netherlands,*

³*Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka,* ⁴*Central Veterinary Institute of Wageningen UR, Lelystad,*

The Netherlands

**ruwanikalupahana@yahoo.com*

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a common multidrug resistant bacterium, traditionally known as a nosocomial pathogen worldwide. More recently, a specific type of MRSA that emerged in livestock was denoted as livestock-associated MRSA (LA-MRSA). Potential transmission of LA-MRSA from animals to humans, particularly in association with pig farms, has been reported elsewhere. Due to its zoonotic nature, this organism poses an occupational health risk to the farming community, veterinarians, and field staff. Although it is of serious concern, there are no available records on occurrence of MRSA in livestock in Sri Lanka. Hence, the aims of this study were to investigate MRSA colonisation in pigs, employees of the pig farms and the farm environment in selected areas of the country.

From January-December 2015, samples were collected from 100 pig farms situated in five districts; namely, Puttalam, Kurunegala, Gampaha, Colombo and Kalutara. Pigs, pig pens, farm employees and their family members from each farm were sampled with the informed consent of the farm owner. Nasal swabs were collected from 493 pigs and 228 humans. The number of dust samples collected was 119. Samples were enriched in Mueller Hinton broth with NaCl and after overnight incubation, were plated on ORSAB (Oxacillin Resistance Screening Agar Base). Isolates were identified as *Staphylococcus aureus* by using routine microbiological investigations. The *mecA* gene was detected using a standard PCR to test for methicillin resistance.

Out of the 840 samples collected, 12 were positive for MRSA. The prevalence of MRSA colonisation in farms was 10% (10/100), whereas the prevalence in pigs was 1% (6/493). The prevalence in farm employees was 2% (5/228). One farm yielded MRSA in both animals and dust indicating possible environmental contamination. However, the prevalence identified in pigs in the present study is relatively low compared to literature from other countries. Sequence typing is being carried out in order to identify the presence of LA-MRSA among the isolates and to ascertain transmission between pigs and humans. In conclusion, this study indicates the presence of MRSA in pigs, farm workers and the farm environment in Sri Lanka.

Financial assistance given by the National Research Council (NRC 14-105) is acknowledged.