

Risk of transmission of livestock-associated MRSA to non-farm dwellers is negligible

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At a swine farm with pigs carrying methicillin-resistant *Staphylococcus aureus*, levels of MRSA among 95% of visitors became virtually undetectable only two hours after exposure. MRSA in the nasal passages was associated with exposure to airborne MRSA and not directly on physical contact with the animals. The research is published September 29th in *Applied and Environmental Microbiology*, a journal of the American Society for Microbiology.

The study was designed to measure how much MRSA [volunteer](#) subjects carried after spending time in contact with MRSA-carrying pigs on a [farm](#). "Most Danish swine farms are now MRSA-positive and thousands of farmworkers are exposed to MRSA daily," said corresponding author Øystein Angen, DVM, PhD, Statens Serum Institut, Denmark, explaining the rationale for the study.

In each of the four trials, the volunteers—most of them students of veterinary medicine or animal husbandry—spent an hour at a MRSA-positive swine farm. Each volunteer spent two trials as an "active" participant, catching and constraining the pigs, and taking samples from them. In the other two trials, as "passive" participants, volunteers simply stood around in the same room as the pigs. That structure is called "crossover;" this was the first crossover study to examine livestock to human transmission of MRSA.

"The volunteers in the active group had a significantly increased airborne exposure and nasal carriage level of MRSA compared to the passive

volunteers," according to the report. Interestingly, "Direct physical transfer between the hands and the face could not explain the higher nasal carriage level in the active group."

"Transmission of livestock-associated MRSA to humans is of great concern in Europe, due to the implications for human health and the healthcare system," said Angen. A better understanding of transmission routes is needed to guide rational interventions to protect farm workers and visitors, and reduce the risk of transmission to society, he said.

Nonetheless, the authors concluded that the risk that farm visitors might transmit MRSA to others off the farm "is most likely negligible due to the observed decline to unquantifiable levels in 95% of the nasal samples" two hours post exposure.

Several investigations had previously tried to map transmission dynamics. These had used indirect measures for [physical contact](#), including time spent working, and work location. But they had failed to present conclusive evidence of [transmission](#) routes.

MRSA was first described in humans in 1961, but was not discovered in [pigs](#) until 2005. But since then, there has been a steep increase in livestock associated MRSA in people in Denmark. Since 2012, patients with regular contact with livestock who are admitted to hospital for any reason have been tested for MRSA, and if positive, have been isolated until negative. However, one third of human cases of livestock associated MRSA in Denmark are not associated with contact with [livestock](#).

Provided by American Society for Microbiology

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