

Prevalence of MRSA CC398 in pig holdings

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Abstract

Methicillin-resistant *Staphylococcus aureus* (MRSA) is a major cause of healthcare- and community-associated infections worldwide.

MRSA has emerged in pigs. Within the framework of the Euregio project SafeGuard VetMed-net, dust samples and nasal swabs were collected in the Euregio in 2009 and 2010. Mostly found are CC 398 Livestock-associated (LA)-MRSA.

The prevalence of MRSA on pig farms in the Euregio is higher, than the overall prevalence in Germany as indicated by a recent EFSA report. Spa types t011 and t034 are still predominant.

Using a dust sampling method, 59% of all pig holdings were affected. Among 103 MRSA isolates seven different spa types were found, including t011, t034, t2510,, t1456 and t108, t588, t1606. All MRSA found were associated with CC398.

During the admission of patients in German hospitals located in an area with a high density of pig-production colonisations of MRSA CC398 are frequently found. Nevertheless invasive human infections due to MRSA CC398 are rare until now. The risk of nosocomial spread of MRSA CC398 within the human healthcare setting is undetermined.

The most dangerous component, the Panton-Valentine leukocidin (PVL), which often causes serious human diseases, has not been found in the studied animal-associated (LA) MRSA. It was also found that the MRSA strains in pigs are lacking the gene that is responsible for the development of resistance against effective antibiotics. Therefore it is still possible to prevent infections although the life associated MRSA pathogen extends in animals and humans.

The future activities of the safeguard project will be to educate the pig farmers how to prevent infections through information on web sites and folders. The target will be to reduce the colonisation in humans. The MRSA prevalence in the livestock should also be reduced. An identification of virulence markers and an early warning system for epidemic strains will be developed.