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Farmers acquire antimicrobial resistant *Staphylococcus aureus* from pigs

Carriage of animal-associated MRSA CC398 is common among pig farmers. This study was conducted to investigate: 1) whether pig farmers are colonized with pig-specific *S. aureus* genotypes different than CC398, and 2) survey antimicrobial resistance of *S. aureus* isolates from pigs and pig farmers. Forty-eight *S. aureus* isolates from pig farmers and veterinarians and 130 isolates from pigs collected in Western Switzerland were genotyped by spa-typing and amplified fragment length polymorphism (AFLP). Antimicrobial resistance profiles were determined for representative sample of the isolates. Obtained earlier data on healthy *S. aureus* carriers without exposure to agriculture were used for comparison. The genotype composition of *S. aureus* isolates from pig farmers and veterinarians was similar to isolates from pigs with predominant AFLP Clusters CC398, CC9 and CC49. The resistance to tetracycline and macrolides was common among the isolates from farmers and veterinarians: 52% isolates were resistant to tetracycline and 21% to clarithromycin. The resistance levels among isolates from pigs were very similar: 39% resistant to tetracycline and 23% resistant to clarithromycin. This was in contrast to isolates from persons without contact with agriculture, where no (0/128) isolates were resistant to tetracycline and 3% of isolates were resistant to clarithromycin. MRSA CC398 was isolated from pigs (n=11) and pig farmers (n=5). These data imply that zoonotic transmission of multidrug resistant *S. aureus* from pigs to farmers is very frequent, and well-known MRSA transmission merely represents a tip of an iceberg of this phenomenon. We speculate that relatively low frequency of MRSA isolation is related to lower antimicrobial use in Switzerland compared to e.g. the Netherlands.

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