

People can become infected with methicillin-resistant *Staphylococcus aureus* (MRSA) through contact with livestock

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Methicillin-resistant *S. aureus* (MRSA) can be detected in humans and in many domestic animals and pets. It colonises the skin and mucosa but can also lead to severe wound and respiratory infections and even blood poisoning. The special characteristic of these germs is their insusceptibility (resistance) to a group of antibiotics that include penicillins and cephalosporins. As a consequence of this resistance infections with these germs are difficult to treat. The name is derived from the test substance, methicillin, on the basis of which the resistance of the bacteria was identified in the past.

In hospitals MRSA has been the feared pathogenic organism for decades of the so-called hospitalism infections. Since the 1990s MRSA has been increasingly detected outside hospitals, too.

Over the last three to four years there have been more and more reports of the occurrence of MRSA in animals. Firstly, it occurs as pathogens in animal clinics and it has also been detected in healthy livestock. One type of MRSA in particular was found in livestock, ST398. This type was also found in individuals who come into contact with livestock, i.e. in farmers, veterinarians and slaughterhouse staff. However, only in a few cases did colonisation with the germ lead to disease.

As a consequence, research into other possible transmission routes of MRSA has been intensified. In this Opinion the Federal Institute for Risk Assessment (BfR) has examined the main exposure routes for man, i.e. the possibility of becoming infected through contact with livestock, the environment and contact or consumption of food with MRSA. Attention focused on MRSA type ST398 as this is the type that has been detected most frequently along the food chain, i.e. from livestock down to the food in the retail trade, in Germany too.

People who have a great deal of contact with livestock through their work, are to be classified as a risk group for colonisation and infection with MRSA. Transmission via the environment of the animals seems to be possible as this type of MRSA has also been detected in stall housing dust. However, there is little evidence so far to confirm this route of transmission. MRSA is also detected in food, above all in meats. However, the concentration of germs in the food is low and so far there have been no signs of infections resulting from contact with or consumption of food contaminated with MRSA. The basic rules of kitchen hygiene (cook meat through to the centre, avoid cross-contamination) offer additional protection against MRSA-contaminated food as the germ dies when heated.

The transmission of MRSA from people who work with livestock to other people is possible. The transmission from person to person in daily life is currently only of minor importance for the spread of MRSA type ST398. Nevertheless, given the frequency of colonisation of people exposed at work, migration of MRSA ST398 is possible in healthcare institutions when individuals colonised with MRSA for example are admitted to hospital.

BfR recommends that the above-mentioned groups of individuals like farmers, veterinarians and slaughterhouse staff should be given more information about the risk of colonisation and infection with MRSA, the necessary hygiene rules and protection measures.

At the present time, it is not possible to quantify the risk for consumers of being colonised or even infected with MRSA ST398. BfR believes that comprehensive research work is needed in order to gain a better understanding of the properties of the pathogen. This should focus above all on the factors which facilitate its spread and the possibility that the germ takes on pathogenic properties from other pathogens or acquires resistance to other antibiotics.

The full version of the BfR Opinion in German is available on
http://www.bfr.bund.de/cm/208/menschen_koennen_sich_ueber_den_kontakt_mit_nutztieren_mit_mrsa_infizieren.pdf