

## Frequently Asked Questions by Vets about MRSA

FAQs of BfR, BVL and FLI, 12 May 2009

Methicillin-resistant *Staphylococcus aureus* (MRSA) can be detected in humans and animals. The detection of the pathogen in animals but also in vets and farmers raises a number of questions.

The Frequently Asked Questions by vets concerning the detection of MRSA in themselves or animals are discussed below. The questions and answers were jointly elaborated by the Federal Institute for Risk Assessment (BfR), the Federal Office of Consumer Protection and Food Safety (BVL) and the Friedrich Loeffler Institute.

Questions about the transmission of MRSA from man to man are handled by the Robert Koch Institute.

### **What does the detection of MRSA in me/my colleagues mean for patients and animal keepers? How high is the risk of MRSA transmission from me to my patients?**

Basically, the assumption is that people who are colonised or infected can transfer the pathogen to animals and herds. We do not know how high the probability of this carry-over is.

### **How do I assess positive detection in a livestock herd or animal?**

In the assessment a distinction must be made between clinical diseases requiring treatment and the sole colonisation of a patient. In the case of a clinical disease caused by MRSA, further typing of the pathogen should definitely be undertaken to obtain information on the possible source of the pathogen.

In all cases the administration of antibiotics should be critically evaluated and consideration given to the use of alternative treatments, particularly against the backdrop of the influence of antibiotics on the existing bacterial flora including non-pathogenic bacteria.

#### *Companion animals and horses, veterinary clinics*

As MRSA could be isolated comparatively frequently up to now from infection processes in horses and companion animals, further characterisation of the MRSA strains of these animal species is advisable. Clinical assessment depends on the results of this diagnosis. It is important that special care is exercised when treating these patients in order to avoid carry-over to other animals or to nursing staff.

#### *Pig farming*

MRSA is very widespread in pig populations in Germany. Colonisation of pigs is in most cases not associated with clinical symptoms. If clinical symptoms occur, then it must be clarified whether the detected MRSA is actually linked to these symptoms. This applies in particular to isolates from skin and mucosa surfaces (e.g. nasal swabs, skin samples in the case of dermatitis) as the pathogen also occurs in the environs of pigs (e.g. in dust).

#### *Cattle farming*

MRSA has been detected up to now in individual dairy cattle farms in milk samples collected from cows with mastitis diagnosis. Here it seems to behave in a similar way to other *Staphylococcus (S.) aureus*. There are no signs of stronger or weaker clinical symptoms. Efforts

should be made to rapidly determine which animals are affected in order to prevent further spread in the herd through the milking process.

According to present knowledge it is likely that MRSA is also widespread in veal calf herds. As in pigs, MRSA in veal calves is not associated with clinical symptoms. Hence, assessment should be undertaken in the same way described for pigs.

#### *Poultry farming*

MRSA could also be detected in poultry flocks. However, the number of detections in poultry flocks up to now has been far lower than in pig populations. In the case of poultry, too, animals that have tested positive for MRSA did not generally present any clinical symptoms either.

#### **Which measures are particularly important in practice in order to avoid the carry-over of MRSA?**

The Technical Rules of the Committee for Biological Working Materials should be observed when handling biological working materials in agriculture and forestry. They can be accessed on the Internet (in German): [http://www.baua.de/nn\\_5846/de/Themen-von-A-Z/Biologische-Arbeitsstoffe/TRBA/TRBA-230\\_\\_content.html?\\_\\_nnn=true](http://www.baua.de/nn_5846/de/Themen-von-A-Z/Biologische-Arbeitsstoffe/TRBA/TRBA-230__content.html?__nnn=true).

#### *Companion animals and horses, veterinary clinics*

The hygienic rules in place for clinics should be complied with in order to avoid carry-over of the pathogen from one animal to another during treatment and care of inpatients.

#### *Pig and poultry farming*

It can be assumed that the spread of pathogens between animal herds mainly takes place via animals and animal trade. However, other vectors may play a role, too.

No information is available at the present time about the role of individuals (e.g. veterinarians) in the spread of MRSA between herds. Similar to other pathogens, transmission between individual herds via contact people is, however, possible. Hence, the customary hygiene rules should be observed when going from one herd to another (disposable clothing for each herd, proper use of face masks etc.). As the pathogens also occur in the environs of the animals, direct contact with the colonised animals is not necessary for carry-over. Equipment and materials should not be used in several herds without prior disinfection.

#### *Cattle farming*

Up to now MRSA carriers have only been identified in a few dairy herds. In some cases these were farms where pigs were also kept. As for other farm animal species non-controlled animal traffic (purchasing, but also exhibitions and markets) is a potential route for the spread of MRSA. Within dairy herds it can be assumed that - similar to other *S. aureus* - the milking process plays a major role in transfer from udder to udder and quarter to quarter. Hence, milking time hygiene recommended for *S. aureus* should also be applied to MRSA.

We do not know whether MRSA in dairy cattle also occurs at other points in the body or in the environs of the animals or whether its incidence is restricted to the udder. Based on experiences with pigs and fattening calves, the nasal mucosa must also be seen as a potential site of colonisation. MRSA has already been isolated from nasal swabs from fattening calves. When it comes to precautionary measures to prevent carry-over from herd to herd, the same rules may apply as for pig herds.

So far, the role of people for the transmission of MRSA between dairy cattle herds is not known. Hence, the same rules should apply to protective clothing as for pig populations.

### **Which measures are particularly important in practice in order to protect myself from being colonised/infected with MRSA?**

The Technical Rules of the Committee for Biological Working Materials should be observed when handling biological working materials in agriculture and forestry. They can be accessed on the Internet (in German): [http://www.baua.de/nn\\_5846/de/Themen-von-A-Z/Biologische-Arbeitsstoffe/TRBA/TRBA-230\\_\\_content.html?\\_\\_nnn=true](http://www.baua.de/nn_5846/de/Themen-von-A-Z/Biologische-Arbeitsstoffe/TRBA/TRBA-230__content.html?__nnn=true).

We do not know of any protective measures for the veterinary area that can reliably offer 100% protection against colonisation with MRSA. According to surveys of vets and farmers, the use for instance of facial masks in livestock herds did not lead to a reduction in the colonisation rate. However, it is not known whether the protective measures were carried out correctly. Initial studies indicate that correctly used disposable protective clothing and facial masks can reduce the risk of colonisation.

On the one hand, hygiene measures can be derived from experiences in human medicine. This applies in particular to companion animal and horse medicine where the treatment and care of individual animals is in the focus. A large number of colonised animals or a major accumulation of bacteria in the environment is unlikely in this setting in contrast to the situation in farm animals (in particular pigs and poultry).

On the other hand, measures for livestock can only be derived from protective measures against other pathogens. Up to present, there is no evidence whether and, if so, to what extent these are effective against MRSA.

Besides other factors (existing primary diseases, immunosuppression), the use of antibiotics can increase the risk of MRSA colonisation. Hence people who are currently treated with antimicrobials or who are known to have other risk factors should be particularly careful when handling animals that may be colonised with MRSA.

The following hygiene measures, which have been tested in human medicine, can help to reduce the risk:

#### *Companion animals and horses, veterinary clinics*

##### Protective coats and gloves

- Required in the case of possible contact with contaminated material, objects and surfaces
- Protective coats if possible, disposable coats. They should be changed after each visible contamination.

##### Mouth-nose protection

- In the case of invasive measures sterile face mask should be worn.

##### Hand hygiene

- After each contact with contaminated objects and materials
- After removing gloves or protective coat
- After each contact with the patient

## *Livestock*

### Protective coats and gloves

- Necessary in the case of possible contact with pathogen-containing material, contaminated objects and surfaces, i.e. for each visit to an MRSA-positive herd
- Protective coats, if possible disposable coats. They should be changed after each visit to a herd as contaminated protective clothing may transmit the pathogen to other herds

### Mouth-nose protection

- Before entering the sheds sterile mouth-nose protection should be put on and whilst in the shed care should be taken to avoid contamination of the inside with micro-organisms or dust (e.g. from hair)

### Hand hygiene

- After each contact with contaminated objects and materials
- After removing gloves or protective coats
- After each contact with the patient

## **Which of my patients should I test for MRSA infection/colonisation?**

There are various reasons for testing patients for MRSA colonisation. First of all, clinical suspicions about individual animals are to be examined (post-surgical wound infections or other wounds that are not healing well). On the other hand it may be necessary to also carry out livestock tests on the herd level. The following reasons may apply:

### *To treat the patient*

This reason mainly comes into play in the case of companion animals, horses and veterinary clinics. If there is suspicion of an MRSA infection in an animal, this suspicion should be clarified diagnostically in order to give appropriate treatment. In the case of the detection of MRSA, antibacterial treatment should only be administered once the results of resistance testing are available and in line with the antibiotic guidelines of the German Veterinary Association. Consideration should be given to contact animals and persons in the event of detection.

### *To protect nursing staff*

This reason also mainly plays a role in conjunction with companion animals, horses and veterinary clinics. According to the knowledge currently available, effective protection of this kind is not currently available in the case of pig farming as considerable colonisation pressure results from the large number of animals.

In the field of pig and poultry farming diagnosis on the herd/flock level may be useful if MRSA has been detected in staff and the question is raised about decolonisation of individuals. Decolonisation prior to a planned hospital stay will only be effective if people stay away from the colonised animal herd.

### *To avoid transmission*

This reason applies to all animal holdings. In the case of companion animals, horses and veterinary clinics the focus is on preventing transmission from animal to animal. Based on the knowledge currently available, the same applies with some constraints to dairy cattle farming in terms of colonisation/infection of the mammary gland.

In the field of pig/poultry farming and cattle fattening, the emphasis is on avoiding transmission between herds. This means that the focus is on the diagnosis of the herd/flock, not on the individual animal.

**What consequences does the detection of MRSA have for me if I work in the field of meat inspection?**

At the present time, there are no specific legal provisions regarding MRSA for this area. People, who are involved in meat inspection, are obliged to comply with the hygiene measures in place for other pathogens in order to avoid contamination of food.

**What recommendation do I give to owners of MRSA-positive animals or herds?**

Particularly when the animal keeper is about to go into hospital, the animal keeper himself or a member of his family has poorly healing wounds and/or suffers from other chronic diseases or there are other known risk factors for MRSA infection, the attending physician should be informed about the involvement in livestock keeping and the potential risk of MRSA colonisation.