

Factsheet: What consumers should know about Methicillin-resistant *Staphylococcus aureus* (MRSA)

Public health and the safety of the food supply are of great concern to U.S. pork producers. Producers understand that these issues are as important as the well-being of the animals raised on their farms, environmental conservation and the sustainability of the communities that host them and their employees.

In the past several years, methicillin-resistant *Staphylococcus aureus* (MRSA) has received increased media attention. The bacterium was associated primarily with post-surgical infections or infections acquired after prolonged stays in health care facilities (such as nursing homes) or in people with weakened immune systems.

More attention was called to the pathogen when media began to report on infections acquired outside of health-care facilities. These community-acquired infections happened in locker rooms, gyms, military facilities, prisons and day-care facilities, among other places. These reports

heightened concerns because the people affected were not considered to have weakened immune systems or other underlying conditions that would predispose them to infection.

Companion animals including cats, dogs and horses have been found to carry MRSA. Studies have found that veterinarians and others in close contact with these animals also may carry the bacterium¹.

In late 2007, attention was called to the pork industry and its products when the media reported on a study by Canadian researchers that found MRSA on pig farms². MRSA had previously been reported in pigs and pork products in Holland in 2006³. Since then, research conducted in the United States also has found MRSA in pigs in some farms and in a small proportion of pork products. MRSA also has been reported in pork producers and veterinarians who visit pig farms.

About MRSA, people and pigs

MRSA is a type of *Staphylococcus aureus* (Staph). Staph are bacteria found commonly in humans. In fact, the Centers for Disease Control and Prevention (CDC) report that Staph can be found in 25 to 50 percent of the United States' population at any given time without causing infection⁴.

MRSA however, can only be found on close to 1 percent of the U.S. population. As with Staph, a person usually carries MRSA in the nasal passages or on the skin without developing an infection.

MRSA also can be found on other animals, domestic and wild. Domestic animals such as cats, horses and dogs can carry the bacterium. Livestock, including cattle and pigs, and poultry also may carry MRSA. Wild animals (such as marine mammals, rabbits and turtles) and game animals also have been found to carry it.

Just as MRSA is a type of Staph, there are many types of MRSA. Some have been associated more commonly with health-care associated infections, some with community-acquired infections and some are more commonly associated with animals. The CDC has stated that the MRSA more commonly associated with health-care facilities is different than the one commonly found in community-acquired infections. It also has stated that the MRSA associated with community-acquired infections is clearly of human origin.

The MRSA most commonly found in pigs in North American farms is different from the one associated with health-care and community infections. As is the case with small animal veterinarians and horse owners, it is not unusual for the people who come in contact with MRSA-carrying pigs to also carry MRSA. In many of those

cases, the MRSA carried by people and by the pigs is of the same type. The bacteria do not appear to cause illness in the pigs and there are no data to support that the humans carrying this pathogen are at a higher risk of developing infection than the rest of the U.S. population.

Similarly, recent studies of health-care workers in Holland have found no statistical difference in the number that carry MRSA and have contact with livestock and those with no animal contact⁵.

About MRSA and pork

Several independent studies, abroad and in North America, have found MRSA in samples of meat offered for retail sale⁶. The bacterium has been found in samples of beef, veal, chicken, turkey, lamb, pork and game meats.

Holland has been at the forefront of MRSA research in farm animals for several years. Dutch research has concluded that handling or consuming meat is not a risk factor for MRSA infection. The Dutch Food Safety Authority has concluded that “foodstuffs play a negligible, if any, role in the spread of MRSA in the human population”⁷ and does not consider retail pork a source for human MRSA infections.

Furthermore, experiments designed to find MRSA in retail meats have found very small amounts of MRSA in the samples. It is not clear if the amount

found would be enough to cause infection and no human infection has ever been reported from handling or consuming pork carrying MRSA. Dutch studies have determined that, “The numbers of MRSA bacteria found on foodstuffs are so low that the risk of [human] colonization as a result is considered to be particularly slight.”

It is commonly accepted that conventional, safe handling and cooking practices reduce the risk of MRSA infection even further. In a report commissioned by the U.S. House Committee on Agriculture, the CDC states that, “it is reasonable to conclude that the vast majority of infections result from person-to-person contact.”⁸ The CDC also has stated that “although the finding of MRSA in retail meats suggests a possible role for foodborne

transmission, if such transmission occurs, it likely accounts for a very small proportion of human infections in the United States.”

Recommended guidelines⁹ for the handling of meat that reduce the potential for any type of foodborne illness are:

- Clean
- Separate
- Cook
- Chill

Hand washing before handling food products and between different products to avoid cross contamination also is important.

Proper wound care, including prompt treatment and covering of wounds should always be done and especially if food is to be handled.

¹ Hanselman, Kruth, Rousseau, Low, Willey, McGeer and Weese. 2006. Methicillin-resistant *Staphylococcus aureus* colonization in veterinary personnel. *Emerg Infect Dis*.

² Khanna, Friendship, Dewey and Weese. 2007. Methicillin-resistant *Staphylococcus aureus* colonization in pigs and pig farmers. *Vet. Microbiol*.

³ van Loo, Diederer, Savelkoul, Woudenberg, Roosendaal, van Belkum, et al. 2007. Methicillin-resistant *Staphylococcus aureus* in meat products, the Netherlands. Online. *Emerg Infect Dis*. Accessed Aug. 2008. Available from <http://www.cdc.gov/EID/content/13/11/1753.htm>

⁴ Chambers. 2001. The changing epidemiology of *Staph aureus*?. Online. *Emerg Infect. Dis*. Accessed Nov. 2008. Available from <http://www.cdc.gov/ncidod/eid/vol7no2/chambers.htm#6>

⁵ Wulf, Tiemersma, Kluytmans, Bogaers, Leenders, Jansen, Berkhout, Ruijters, Haverkate, Isken, and Voss. 2008. MRSA carriage in healthcare personnel in contact with farm animals. *Journal of Hospital Infection*.

⁶ Weese, et al. 2008. International Conference on Emerging Infectious Diseases, Atlanta, Georgia. Proceedings.

⁷ Voedsel en Waren Autoriteit. Accessed Nov. 2008. www.vwa.nl

⁸ Centers for Disease Control and Prevention. 2007. Responses to questions on MRSA in food-producing animals addressed in the Dec. 14, 2007, Letter from the House Committee on Agriculture.

⁹ Partnership for Food Safety Education. Online. Accessed Nov. 2008. www.fightbac.org

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