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Control Approach

Protection against dust and microbes in piggeries and while handling pigs

MRSA has become more common in farm pigs. Because of this, people who handle pigs in their work need to protect themselves from infection. The MRSA guidelines also provide employees with protection from other microbial infections and dust present in piggeries. The guidelines contain nine basic facts about the prevention of MRSA infections.

- Infections can be transmitted by touching a pig or a dusty surface or by inhaling dusty air in a room that contains pigs.
- Appropriate protective measures must be taken when visiting a piggery or handling farm pigs.
- It is safe to eat cooked pork.
- By following the nine guidelines on the next page, you will be able to prevent the MRSA infections and the spreading of MRSA.

Basic information about MRSA

MRSA bacteria (methicillin-resistant *Staphylococcus aureus*) can be temporarily present on the skin and in the nose of a person without causing any symptoms. Such persons are asymptomatic carriers of the bacteria. If the MRSA bacteria come in contact with a wound or broken skin, they may cause a local inflammation of the skin or an abscess. Serious infections caused by MRSA, such as infections of surgical wounds, are most typical in hospitalised patients. Several antibiotics are ineffective against MRSA, which makes treating MRSA infections difficult.

MRSA may be transmitted between animals and humans through direct contact, surfaces, clothes, footwear or air. MRSA can survive for a long time in dust. Enclosed compartments that contain a lot of farm pigs have often a high dust concentration of air. In Finland, MRSA has been detected in piggeries and slaughter pigs, and it has become more common in pig production. Without testing, it is not possible to know whether particular animals have MRSA or not, so everyone who handle pigs and visit piggeries must protect themselves. Dogs and other pets shall not be let into areas that contain farm animals due to the risk of animal disease infections. piggeries contain an additional risk of MRSA infection, which the pets can then transmit to a home environment. The MRSA bacterium cannot withstand high temperatures, so eating and handling cooked meat is safe. MRSA is occasionally present in fresh pork products. Washing your hands and tools after handling raw meat is important.

The guidelines against MRSA infections protect people also from other microbial infections and harmful dust.

More information about MRSA in pigs:
https://www.ruokavirasto.fi/en/themes/zoonosis-centre/.

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Nine guidelines for the prevention of MRSA infections in piggeries and while handling pigs

1. Carefully follow the guidelines of animal husbandry and keeping the related areas clean. Favour methods that generate as little dust as possible. Use respiratory protective equipment.
2. Wash the dirt off your hands with water and soap. Dry your hands with a disposable paper towel. This is particularly important before eating, drinking, smoking, having a break or going to the toilet (also after going to the toilet) or home after work. Hand sanitizers can be used after washing your hands with water and soap, especially if the skin on your hands is broken and exposed to infections, you have been diagnosed with an infectious disease or your physician or a veterinarian has recommended using a hand sanitizer in a piggery for some other reason. Disinfectants are ineffective if there is visible dirt on the skin. Read the instructions of the product carefully and apply an amount of the substance that cleans the hands thoroughly.
3. If your skin is broken, cover the broken area in a watertight manner before arriving at work. If the skin of your hand is broken, wear disposable watertight gloves all the time. Follow the instructions provided by the occupational health services in order to prevent infections.
4. Take off all pieces of jewellery and your watch before working. Keeping your nails short supports good hand hygiene. A special phone that is not used anywhere else must be used in animal facilities. However, if you need to bring your own mobile phone to an animal facility, you must enclose it in a watertight bag. Take the device out of the bag only after cleaning your hands.
5. Put on your herd specific clothing, headgear, protective footwear, respiratory protective equipment that protects against dust and protective gloves before entering an animal facility. Take this equipment off when you exit the facility. Shower immediately and remember to wash your hair. Keep your work clothes and personal clothes completely separate. Do not enter your car while wearing the work clothes you have worn in the animal facility.
6. Wash the clothes you have worn in a piggery on the farm. If this is not possible, seal them in a bag and wash them separate from other laundry. Roll up your sleeves before inserting the clothes in the washing machine. Insert dirty laundry directly into the washing machine from the bag. Wash your hands with soap or disinfect them carefully up to your elbows. Close and turn on the washing machine after washing your hands. Do not wash any other laundry in the same cycle. Make sure that the bag is not used again for any other purpose than bringing dirty laundry from a pig farm. If your work clothes are washed by a laundry service provider, make sure that the provider does not handle the laundry with bare hands and avoids dusting the dirty laundry.
7. Wear special personal herd specific protective footwear in animal facilities. Rinse the bulk of the dirt from the footwear every day. Wash the footwear from the inside and outside regularly and very carefully. Dry the footwear carefully.
8. Do not use any equipment including protective equipment used in the piggery outside the piggery. Clean your tools carefully with water and soap if you need to use them outside the piggery.
9. If you need medical attention, inform the staff that you work at a pig farm. Similarly, members of your family should tell medical staff that their family includes a member whose job involves handling pigs. MRSA infections are often screened when a patient visits a hospital, as an infection might have an effect on the type of antibiotic medication selected and because special precautions may have to be taken in order to protect other patients. Hospital patients are particularly vulnerable to serious infections caused by MRSA.

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Responsibilities on occupational safety at workplaces

The employer is responsible for assessing the risks related to the health and safety of employees and the related risk management as well as selecting and acquiring appropriate protective equipment. The risks must be eliminated or reduced to a safe level primarily by adjusting working methods, applying technical measures and organising the work. The protective equipment selected must fulfil their requirements. The protective equipment must be sufficiently effective and appropriate for the work and work environment. Ergonomics and the employees' health must be considered when selecting the protective equipment. The employer must train and provide employees with instructions on how to perform their job safely and how to use the protective equipment. The employer must ensure the efficiency of risk management.

Employees must follow the occupational safety instructions provided by the employer. They must wear clothes appropriate for the work and the designated protective equipment. Any shortcomings in occupational safety must be reported to the employer, and the level of occupational safety must be developed in co-operation with the employer.

Legislation:
Occupational Health and Safety Act 2002/738
The Government Decision on the Selection and Use of Personal Protective Equipment 1993/1407
Government Decree on Protecting Workers from Risks Arising from Biological Agents 2017/933.

Safe use of personal protective equipment at pig farms

1. Personal protective equipment, clothes and footwear must be personal in order to prevent the bacteria from spreading from one person to another.
2. Clean equipment must be stored in clean areas.
3. The equipment must be put on before entering an animal facility.
4. Dirty and clean areas must be clearly separated. The separating area can be the same as the hygiene lock for entering the animal facilities of a piggery.
5. All work equipment must be assigned to be used either in animal facilities or clean areas.
6. For the selection of protective equipment usage trials are organized. Particular attention must be paid to ensure that all employees are able to use the equipment in their work. If several pieces of protective equipment are required to be worn, their compatibility on all employees must be ensured. The selection process must also include the assessment of the equipment's maintainability and cleanability.
7. Only equipment, which has the CE marking and which is sufficiently effective and appropriate for the employees and the work must be selected.

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Protective gloves

Protective gloves must be worn in piggeries and when handling pigs for several reasons. Consequently, a variety of gloves are required. It might be difficult to clean re-usable gloves from the inside. That is why the gloves must be replaced with a new pair frequently or, alternatively, disposable gloves must be worn.

It is important to take off disposable gloves in an appropriate manner. Laminate and put up the Control Approach for removing disposable gloves at the location where the gloves are removed, www.ttl.fi/malliratkaisut (in Finnish). Hands must also be washed after removing the gloves and before eating, drinking, smoking or going to the toilet or home after work.

Tight gloves, moist working conditions and frequent hand washing irritate the skin and can cause irritant contact dermatitis. Gloves may also cause allergic contact dermatitis. In order to prevent skin problems, use washing agents and disinfectants that contain glycerol and treat your skin with creams that do not contain preservatives. All skin care products must be unperfumed. Wearing cotton gloves underneath the protective gloves reduces skin irritation. Gloves worn underneath another pair of gloves in piggeries and when handling pigs must be washed at least once a day. If you experience skin problems, please contact the occupational health services, especially if the problems are caused by your job.

It is very important to maintain the health and integrity of your skin. Appropriate gloves protect you from mechanical hazards and do not cause abrasion. The markings and characteristics of gloves that protect you from such hazards are available in the Control Approach titled "Protective gloves against mechanical hazards", www.ttl.fi/malliratkaisut (in Finnish).

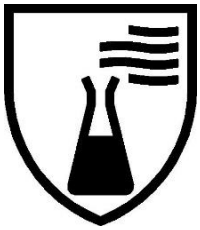
In addition to washing and disinfecting hands, protective gloves also protect hands from bacteria and other microbes. The basic criterion is that the gloves used to protect hands from bacteria must be impenetrable. Such gloves are equipped with a pictogram and the standard label EN 374-1 or EN 374-5.

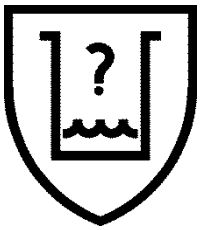
Gloves that protect from chemical hazards must be worn when handling chemicals that are harmful to the skin or absorbed into the skin. Several chemicals, including many solvents and amines, can be absorbed through the materials used in gloves. Therefore, the chemical's safety data sheet must be checked to see what materials the gloves must be made of and how thick they must be. The gloves are equipped with a pictogram and the standard label EN 374-1. There are four digits after the CE certification label of gloves that protect from chemical hazards.

When an animal needs to be protected instead of an employee, gloves for performing a medical examination or surgical gloves may be used. Such gloves are equipped with a CE certification and the standard label EN 455-1, EN 455-2, EN 455-3 or EN 455-4. They are not equipped with a pictogram.

Protective gloves or their packaging is always equipped with a CE certification label.

Pictogram of
gloves that protect from microbes





One of the following two pictograms can be found on gloves that protect from chemical hazards.

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Respiratory protective equipment

MRSA infections can also spread by inhaling dust contaminated by the bacteria. Most animal facilities contain a lot of dust and, consequently, microbes. In order for the respiratory protective equipment to protect from MRSA infections, it must be effective and worn at all times.

All types of respiratory protective equipment have their own level of effectiveness. Learn more about the effectiveness of respiratory protective equipment at www.ttl.fi/malliratkaisut (in Finnish).

In the case of respiratory masks, it is more important that the mask fits the face than the actual effectiveness of the mask. If the mask does not fit appropriately on the face, it does not provide any protection. Leakage tests must be performed to ensure that the masks provide sufficient protection. A Control Approach for respiratory protective equipment and leakage testing can be found at www.ttl.fi/malliratkaisut(in Finnish).

The disposability or cleanability of the respiratory protective equipment must be taken into account when selecting the equipment. Most particle filtering half masks (dust masks) are disposable and, according to the protective equipment classification, they can be worn during a single shift. In the context of preventing infectious diseases from spreading, disposability often refers to removing the protective equipment from use immediately when it is taken off. If the equipment is used again, particular attention must be paid to keeping its interior surfaces clean. Respiratory protective equipment with an interior surface that might be contaminated with infective agents must never be worn on the face. Foldable filtering half masks must not be folded after use if they are supposed to be worn for a second time for the purpose of protecting the user from microbes, as the exterior surface of the mask comes in contact with the interior surface when the mask is folded.

Respiratory protective equipment models that cover the entire face also protect the user's eyes and prevent the user from touching their face, which reduces the risk of spreading MRSA.

The duration of work, workload and temperature all affect the selection of appropriate equipment. Equipment that does not include a blower might be too heavy to be worn all the time. It might be slightly easier to breathe through half masks and full face masks than through filtering half masks, as the surface of the particle filter is larger. Equipment that includes a blower and a helmet or a face protector is lighter than protective masks that do not include a blower and can make working easier. Equipment that includes a blower that adjusts to the user's breathing rhythm are exceptionally light to be worn. The occupational health services will comment on the stress caused by the equipment selected and the need to take breaks, especially due to health reasons.

Equipment that includes a blower, half masks and full-face masks can be equipped with a combination filter that filters both ammonia and dust from the air.

Put up the following Control Approaches at the workplace: Putting on a filtering half mask and Putting on a half mask, www.ttl.fi/malliratkaisut (in Finnish).

Equipment classification recommendations in order of effectiveness: respirator that adjusts to the user's breathing rhythm (classification TM3K1P) and full face mask equipped with a K1P3 filter, respirator equipped with a blower and a helmet or a face protector (classification TH3K2P), half mask equipped with a K1P3 filter and a filtering half mask FFK1P3, filtering half mask FFP3.

Filtering half mask

Half mask

Full face mask

Respirator equipped with a blower and a face protector

Respirator that adjusts to the user's breathing rhythm

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Hearing protectors

Hearing protectors that are sufficiently effective and either disposable or easy to clean must be worn when handling pigs. Usability must be a priority, as the protectors must be worn whenever exposed to noise. Earplugs can cause pain for some people, which prevents them from being worn for a long time.

How to wash and maintain the protectors is described in the protectors' manual, which must also be reviewed when selecting the appropriate product. The manufacturer may have further information about washing or disinfecting the protectors. There are lots of differences between different models of earmuffs. The sealing ring and padding of the earmuffs must be replaced with new parts often (Hygiene set). Disposable sealing ring protectors make it easier to keep the hearing protectors clean.

Both disposable and re-usable earplugs are available. Most re-usable earplugs can be cleaned easily. If the earplugs are equipped with a filter, which typically cannot be washed, the earplugs are not suitable for this work. Re-usable plugs must be washed every time before inserting them into the ear.

Taking off hearing protectors while working causes a significant risk of spreading dust and microbes to the skin of the ear, into the ear and into the hair. In order to minimise the need to take off the protectors, noise detection protectors with alternating levels of attenuation according to the level of noise are typically used (active noise reduction (ANR) hearing protectors). For similar reasons, the protectors may be equipped with Bluetooth connectivity for talking on the phone. Electronic hearing protectors cannot be submerged. They must be cleaned with a disposable towel that has been soaked in soapy water. Wash your hands very carefully before inserting earplugs. Earmuffs should not be contaminated with dirty hands either.

Parts of your headgear, eyeglasses, safety goggles or respiratory protective equipment must not prevent the edge of the earmuffs coming in full contact with your head. This makes the earmuffs significantly less effective.

Read more about the use of hearing protectors from the Control Approaches: Hearing protectors, Earplugs and Use of earmuffs, www.ttl.fi/malliratkaisut (in Finnish).

Eye protectors

Use eye protectors to prevent spatter and debris from coming in contact with eyes. The use of eye protectors reduces the risk of rubbing the eyes with dirty hands. Eye protectors must be washed every day. More information about eye protectors can be found in the Control Approach Eye and face protectors in professional use, www.ttl.fi/malliratkaisut (in Finnish).

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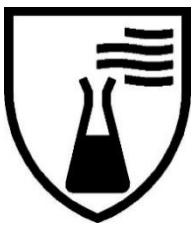
Pictogram of
clothes that protect from microbes



Pictogram of
clothes that protect from chemicals

Clothing

Any possible instructions provided concerning the health of pigs must also be taken into account when determining the suitability of clothing. Clothes that cover the skin comprehensively must be worn in animal facilities. Work clothing also includes headgear and socks.

People who work in a piggery but are not employees of the farm must always carry an additional set of clothes and a sealable laundry bag for used clothes in case the farm is not able to provide work clothes.

More instructions regarding work clothes can be found on the second page of this Control Approach.

If necessary, disposable overalls that protect from microbes or chemicals can be used. Type 5 protective clothes that protect the user from microbes or chemicals also lessen exposure to dust. Typically, these overalls are white and their labelling includes the text "Type 5". The labelling also includes pictograms. Type 3 overalls protect from high-pressure spatter. They also provide protection in situations where the user has to lean on a wet surface while wearing the overalls, for example. If the purpose of the overalls is to protect from a chemical, the manual or the manufacture should be reviewed or consulted in order to verify that the material provides protection from the chemical in question. Type 3 overalls, in particular, are leakproof and hot to wear, so they cannot be worn for long periods of time. Select a model that can fit hearing protectors inside them. Wear the respiratory protective equipment and hearing protectors inside the hood of the overalls. If the purpose of wearing the overalls is to protect the user from exposure to dust, the spreading of dust must be avoided when taking off the overalls.

Authors of the Control Approach

This Control Approach is based on the "Zoonoottinen MRSA: torjunta sikatiloilla työskentelevillä (Zoonotic MRSA: control at pig farms)" study conducted by the National Institute for Health and Welfare, Evira (Finnish Food Safety Authority) and the Finnish Institute of Occupational Health. The study was funded by the Ministry of Agriculture and Forestry's Makera fund.

More information about MRSA and how to control it can be found at: https://www.ruokavirasto.fi/en/ and https://thl.fi/en/web/thlfi-en