SECTION 11.3
METHICILLIN RESISTANT STAPHYLOCOCCUS AUREAS (MRSA)

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Introduction

*Staphylococcus aureus* (S. aureus) is an organism which one third of the population carry on their skin or in their nose. Most healthy people are unaffected by it, however it has the potential to cause infection. *Staphylococcus aureus* may cause skin infection (impetigo) or more serious infections such as abscesses, pneumonia, osteomyelitis, endocarditis, meningitis and sepsis.

MRSA (Meticillin Resistant *Staphylococcus aureus*) is a form of *S. aureus*. It is spread in the same way, and causes the same range of infections as other strains of *S. aureus*, however it has developed resistance to the more commonly used antibiotics.

Increasingly there are a number of individuals in the community who have acquired MRSA. However, MRSA poses a greater risk to those undergoing care in acute hospitals than to people cared for in the community. This is because residents/clients undergoing care in acute hospitals may be more susceptible to infection because they have a wound or undergo surgery. People affected by MRSA do not present a risk to the community at large and should continue their normal lives without restriction. Many individuals are discharged into long term care facilities or use day care facilities - this should not pose a problem to their ongoing care or that of the other residents provided Standard Precautions are adhered to.

**Definitions Associated with MRSA**

**Colonisation/Carriage:** The presence of multiplying micro-organisms without disease or illness. About 80% of people who acquire MRSA carry it harmlessly and do not develop any infection. These people are colonised, this is where there is the presence of multiplying micro-organisms without signs or symptoms of infection.

**Infection:** The term is used to refer to the deposition and multiplication of bacteria and other micro-organisms in tissues or on the surface of the body with an associated host reaction or signs and symptoms of infection.

**Risk Groups**

- Male
- Age > 80
- Residence in Nursing Home < 6 months
- Antibiotic therapy during previous 3 months
- Hospitalisation during previous 6 months
- Peripheral Vascular Disease
- Pressure sores
- Steroid Therapy
- Poor general skin condition
- Mental test score < 14  


Evident from the above list is that many of our residents/clients, particularly in long-stay facilities, now seem to have at least one or more compounding risk factors predictive of acquiring MRSA colonisation.
**Signs and Symptoms**
The majority of residents/clients colonised with MRSA do not have any signs or symptoms present. When residents/clients have an infection caused by MRSA their signs and symptoms will vary depending on where the infection is present e.g. there may be redness, pain, temperature or increasing exudates if there is a wound infection caused by MRSA.

**Source**
The main source of MRSA is the colonised or infected resident/client.

**Mode of Transmission**
MRSA is spread from person to person mainly via the hands of healthcare workers. The micro-organism can easily be picked up on the hands after direct client contact or contact with contaminated equipment. This is the most important mode of transmission and is usually associated with inadequate hand hygiene between residents/clients. The major focus of control is the prevention of hand transfer of MRSA.

**Diagnosis**
MRSA is identified by taking a sample from a site such as a wound and sending it to the Microbiology Laboratory to be tested. In some instances a MRSA screen may be taken depending on the resident/client please see screening section below. A screen requires a nasal, axilla and a groin swab or a perineum along with a swab from any device in situ such as a peg tube, any wounds present, and a CSU if a urinary catheter is present. It takes approximately three days for the result to be available.

**Treatment**
- If MRSA eradication treatment has already commenced prior to discharge from an acute hospital, it should be completed according to the prescribed regime of the discharging facility. (Please contact the referring hospital or Infection Prevention and Control Nurse for advice or queries re stage of therapy or need for further screening).
- MRSA topical eradication may be prescribed in certain situations for example persons undergoing further treatment, pre-operatively on the advice of the admitting physician/surgeon.
- If a treatment protocol is advised, contact your Infection Prevention and Control Nurse for advice.
- Periodic attempts at decolonisation should not be routinely performed.
- Mupirocin is effective at eliminating MRSA carriage from nasal passages. However, prolonged use and multiple courses of mupirocin are associated with the development of mupirocin resistance (Rossney and O’Connell, 2008).
- Research indicates that up to 30% of people become re-colonised 12 weeks after the completion of a decolonisation protocol (SARI 2005).

**Screening**
- There is no indication for routine screening before hospital discharge to a community unit.
- Periodic screening should not be routinely performed.
- If a resident/client is discharged with MRSA colonisation in a wound the wound should be assessed and rate of healing monitored. The wound should not be routinely swabbed but if signs of infection develop a wound swab may guide management of the infection. When taking a wound swab, culture and
sensitivity should be requested as opposed to MRSA screen. (If MRSA screen is requested the lab will only look for MRSA and may miss the real organisms causing the infection).

- If a healthcare facility is in doubt about the management of a staff member or resident with MRSA they should, according to local arrangements, contact the Consultant Microbiologist, the Infection Prevention and Control Nurse, Occupational Health Dept (for staff) or the General Practitioner and follow the advice given.

**Communication**

- If a resident/client with MRSA is attending or being admitted to an acute hospital then the hospital should be informed that the resident/client has been/is MRSA positive.
- If the resident/client is to be admitted to a long term care facility then the facility should be informed that the resident/client has been/is MRSA positive.
- If a resident/client is known to be MRSA positive while being an inpatient this information should be conveyed to the relevant healthcare facilities on discharge.
- Healthcare facilities should ensure that residents/clients who are found to be colonised with MRSA are informed of this and provided with appropriate information (SARI 2005). Suitable information leaflets should be provided for residents and their families.

Please refer to: “MRSA: An information leaflet for patients and their families” Community Infection Control Services Cork and Kerry, HSE South 2011.

**Advice for Residents/ Clients and their Families with MRSA**

People with MRSA do not present a risk to the community and should continue their normal lives without restriction.

- Normal social interaction with relatives and friends both inside and outside the home is recommended.
- The use of specific disinfectants for environmental surfaces is not required. Household cleaning should be performed in the usual manner.
- Clothing and linen should be dealt with in the usual manner, there are no specific measures required.
- Persons with a history of MRSA should inform their hospital if they are being admitted.

Please see: “MRSA: An information leaflet for patients and their families” Community Infection Control Services Cork and Kerry, HSE South 2011

**Advice to Healthcare Workers**

- Although staff may carry MRSA such carriage is often transient and is not believed to contribute significantly to the spread of MRSA. Therefore the screening of staff on a routine basis is generally not indicated. Staff screening maybe considered for institutions without endemic MRSA, or for specific high risk units, as determined by the local Infection Prevention and Control Team in consultation with Occupational Health (SARI 2005).
- Good hand hygiene as per The WHO Moments of Hand Hygiene is the most important infection prevention and control measure. Please refer to section 3 for further information.
• Hand care is important, because skin that is intact (no cuts or abrasions) is a natural defence against infection. All cuts and abrasions must be covered with a water-resistant occlusive dressing and changed as necessary.
• Healthcare workers with damaged skin of the hands e.g. weeping dermatitis or persistent exfoliative skin lesions should not carry out direct patient/client care and should seek medical/occupational advice.

**Antibiotic Use**
The routine use of prophylactic antibiotic administration is not recommended because of its tendency to encourage the emergence of resistant organisms. Following the North/South study of MRSA in Ireland in 1999, the Department of Health and Children recommend that each hospital should have a written antibiotic policy, with its implementation reviewed on an ongoing basis.

Antibiotic controls should include the following measures:
• Antibiotics should only be used where the benefits are scientifically demonstrable and substantial.
• Empirical antibiotic therapy should be active against the most likely pathogens.
• When culture and sensitivity data is available, therapy should be altered as appropriate.
• Ensure correct dosage, appropriate duration of treatment and curtailed use.

**Notification of Infectious Disease**
*Staphylococcus aureus* bacteraemia (*Staphylococcus aureus* in a blood culture) is a notifiable disease under the infectious disease regulations 1981. A medical practitioner and a clinical director of a diagnostic laboratory on suspecting or identifying a case of *Staphylococcus aureus* bacteraemia are obliged to notify the Medical Officer of Health in the Department of Public Health. Outbreaks of infection should be notified to the Medical Officer of Health in the Department of Public Health.
Infection Prevention and Control Measures in Residential and Long Term Care Settings

Placement
- Isolation of residents with MRSA is not generally recommended. Within long-term care facilities residents are encouraged to take part in-group activities and eat in a common dining/day room. It would be contrary to the philosophy and policy of these facilities to isolate ambulatory residents with MRSA. Therefore, the routine use of isolation/single room placement is not encouraged. The exceptions might be a resident with wounds heavily colonised with MRSA, or a resident with a tracheostomy who is unable to control their secretions.
- A resident with MRSA who does not have open sores or wounds may share a room with a person who does not have such skin conditions, pressure sores, post operative wounds, indwelling intravascular lines or catheters.
- A resident with MRSA may join other residents for social activities as long as any sores or wounds are kept covered with a dressing.
- It is the duty of the nurse accepting the resident to assess the risk the resident poses to the other residents on that ward/unit and must position the resident so that they pose no or a low infection risk to the other residents and vice versa.
- MRSA is not a contraindication to admission to a long-term care facility or a reason to exclude an affected person from the normal activities within the facility.

Precautions Required
- Residents with MRSA do not generally present a risk to their community and should continue their normal lives without restriction.
- No special precautions beyond Standard Precautions are generally required for the care of residents with MRSA.

Hand Hygiene
The major route of transmission of MRSA within any healthcare setting is from resident to resident via the hands of healthcare workers who acquire the organism after direct resident care or after handling contaminated equipment. Similar to any other organism, the prevention of cross infection of MRSA within a healthcare setting is very much dependent on the proper understanding and practice of Standard Precautions. The main infection prevention and control practice that should be routinely carried out in community healthcare facility is hand hygiene between resident contacts.
- Cuts, sores and wounds of staff and residents should be kept covered with an impermeable dressing.
- Good hand hygiene as per the WHO Moments for Hand Hygiene reduces the risk of spread of any multi drug resistant organism including MRSA. Alcohol hand gel is recommended for use on visible clean hands.
- Good hygiene including hand washing after using the toilet and before eating should be encouraged for all clients/residents.

Protective Clothing
Disposable gloves and a plastic apron should be worn when handling blood/body fluids and when performing wound care/catheter care/aseptic procedures as per Standard Precautions. Staff must carry out a risk assessment considering the task to be carried out, the risk of exposure to blood/bodily fluids etc to determine the PPE required if any.
Cleaning and Decontamination of Equipment
- Equipment such as wash bowls, hoist slings, toiletries etc should be dedicated for individual use only.
- Ensure that shared equipment e.g. commodes, baths, bathing aids are cleaned appropriately immediately after use.
- Chemical disinfectants are not recommended for routine cleaning, if items are soiled with blood or bodily fluids clean and decontaminate in accordance with the manufacturers instructions, immediately after use and before use on another resident/client- For majority of items clean using a neutral detergent and water and disinfect using a hypochlorite 1,000 parts per million (ppm) e.g. Klorsept/Milton, alternatively use a one step product -combined detergent and hypochlorite 1,000 ppm e.g. Chlor clean.

Cleaning and Decontamination of the Environment
- Daily cleaning with detergent and warm water is recommended for environmental cleaning.
- Chemical disinfectants are not recommended for routine cleaning. If the environment is soiled with blood or bodily fluids following routine cleaning decontaminate in accordance with the manufacturers instructions, immediately after use and before use on another resident/client- For majority of items clean using a neutral detergent and water and disinfect using a hypochlorite 1,000 parts per million (ppm) e.g. Klorsept/Milton, alternatively use a one step product -combined detergent and hypochlorite 1,000 ppm e.g. Chlor clean.

Laundry
Treat laundry as per Standard Precautions. In the healthcare setting used laundry should be washed at either 65 ° C (150 ° F) for not less than 10 minutes or preferably 71° C (160° F) for not less than 3 minutes. Laundry contaminated/soiled with blood/bodily fluids such as urine and faeces should be placed in an alginate or water soluble bag and sluiced in the washing machine using the appropriate sluice cycle followed by a hot wash where temperatures should reach the same as for used linen. Please refer to section 9.0 Laundry for further information.

Transportation/Resident Movement
Standard Precautions apply to the transportation or movement of residents with MRSA. If a resident with MRSA needs to be transported by ambulance, his/her MRSA status should also be communicated at the time of booking so appropriate arrangements can be made. A risk assessment of the resident/client to be transferred and the other resident/client being transferred needs to be carried out for example residents with MRSA can be transported with others provided all wounds are covered.
Infection Prevention and Control Measures in the Day Care Setting

Precautions Required

- Clients with MRSA do not generally present a risk to their community and should continue their normal lives without restriction.
- No special precautions beyond Standard Precautions are generally required for the care of individuals in the day care setting.
- Standard precautions are recommended for preventing the spread of MRSA in the community. Additional precautions are generally not required.

Hand Hygiene

The major route of transmission of MRSA within any healthcare setting is from client to client via the hands of healthcare workers who acquire the organism after direct client care or after handling contaminated equipment. Similar to any other organism, the prevention of cross infection of MRSA within a healthcare setting is very much dependent on the proper understanding and practice of Standard Precautions.

The main infection prevention and control practice that should be routinely carried out in community healthcare facility is hand hygiene between client contacts.

- Cuts, sores and wounds of staff and residents should be kept covered with an impermeable dressing.
- Good hand hygiene as per the WHO Moments for Hand Hygiene reduces the risk of spread of any multi drug resistant organism including MRSA. Alcohol hand gel is recommended for use on visible clean hands.
- Good hygiene including hand washing after using the toilet and before eating should be encouraged for all clients/residents.

Protective Clothing

Disposable gloves and a plastic apron should be worn when handling blood/body fluids and when performing wound care/catheter care/aseptic procedures as per Standard Precautions. Staff must carry out a risk assessment considering the task to be carried out, the risk of exposure to blood/bodily fluids etc to determine the PPE required if any.

Cleaning and Decontamination of Equipment

- Equipment such as hoist slings and toiletries should be dedicated for individual use only.
- Ensure that shared equipment e.g. commodes, baths, bathing aids are cleaned appropriately immediately after use.
- Chemical disinfectants are not recommended for routine cleaning, if items are soiled with blood or bodily fluids clean and decontaminate in accordance with the manufacturers instructions, immediately after use and before use on another resident/client- For majority of items clean using a neutral detergent and water and disinfect using a hypochlorite 1,000 parts per million (ppm) e.g. Klorsept/Milton, alternatively use a one step product -combined detergent and hypochlorite 1,000 ppm e.g. Chlor clean.
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Laundry
Laundry includes items that are likely to be shared such as sheets, towels and blankets not personal laundry. Add to all Treat laundry as per standard precautions. In a healthcare setting used laundry should be washed at either 65 °C (150 °F) for not less than 10 minutes or preferably 71° C (160° F) for not less than 3 minutes. Laundry contaminated/soiled with blood/bodily fluids such as urine and faeces should be placed in an alginate or water soluble bag and sluiced in the washing machine using the appropriate sluice cycle followed by a hot wash where temperatures should reach the same as for used linen. Please refer to section 9 Laundry for further information.

Transportation/Movement
Standard Precautions apply to the transportation or movement of clients with MRSA.

Infection Prevention and Control Measures in the Home

Precautions Required
Standard Precautions are recommended for preventing the spread of MRSA in the community. Additional precautions are generally not required.

For further information please refer to Infection Prevention and Control; An Information Booklet for Home Helps and Personal Assistants 2011.
Reference and Bibliography


