MID-WESTERN REGIONAL HOSPITAL COMPLEX

Guidelines for the management of meticillin-resistant

Staphylococcus aureus (MRSA)

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1.0 GUIDELINE STATEMENT

Applies to what is currently consistent with best practice.

2.0 GUIDELINE PURPOSE

The aim is to control MRSA colonisation/infection and prevent transmission within the hospital setting as:

- Patients are vulnerable because of invasive techniques and immunosuppression
- Infections may be serious and difficult to treat
- The antibiotics needed may be more toxic
- Transmission can occur readily between patients
This guideline promotes effective communication and sharing of best practice.

3.0 SCOPE OF GUIDELINE

This guideline applies to all health-care staff involved in the care and management of patients according to best practice within the Mid-Western Regional Hospital Complex (Maternity, Orthopaedic and Regional Hospitals).

4.0 INTRODUCTION

*Staphylococcus aureus* (SA) is a bacterium frequently living harmlessly (i.e. colonising) on the skin or in the nose of a healthy person. It is estimated that the meticillin sensitive strain (MSSA) is found in the nares of approximately 30% of the general population. *S. aureus* commonly causes infections both in hospital and community patients which may be mild e.g. boils, infected eczema, or severe, e.g. surgical wound infections and bacteraemia.

Most strains of *S. aureus* are susceptible to flucloxacillin and until recently, the laboratory used meticillin to test for flucloxacillin susceptibility – hence meticillin resistance means flucloxacillin resistance. Meticillin Resistant *Staphylococcus aureus* (MRSA) is usually resistant to other antimicrobials including other penicillins and cephalosporins. MRSA is not a problem to normal healthy people including healthcare workers and healthy relatives. A person found to be MRSA whilst in hospital may have acquired the organism in the community or outside this hospital or a person may acquire MRSA in a hospital setting. MRSA positivity is not always suggestive of healthcare associated infection. A person who is colonised, or has an infection, may act as a source of infection for others since the organism is readily transmitted from person to person on hands.

Reduction in healthcare associated infections (including MRSA-related infections) can be achieved by:
- High standards of hand hygiene by all healthcare workers, before and after attending each patient
- High standards of environmental cleanliness
- Minimum transfer of patients between wards
- Good communication between healthcare workers with each other and with patients in both the hospital and community setting.

Meticillin Resistant *Staphylococcus aureus* (MRSA) bacteraemia is being used as a performance indicator in the HSE “Say No to Infection” plan and it is hoped to reduce MRSA infections by 30% by 2012. Recently, a
healthcare associated infection (HCAI) prevalence survey conducted in 2006 (HIS/HPSC/ICNA) found that 4.9% of infections in acute Irish hospitals were HCAI. Locally, the HCAI prevalence rate was 5.1%, 0% and 0% in Limerick Regional, Maternity and Croom hospitals respectively with 7 MRSA-related infections in the Regional Hospital. This study was undertaken in the Limerick Complex of hospitals in May 2006.

There is sufficient data to suggest that MRSA control is valuable despite the feeling that control is difficult. The fundamental aspects of a successful control programme are:

- Screening of high-risk patients to detect colonisation at the earliest opportunity
- Isolation and use of infection control precautions to prevent further spread

Surveillance also has a pivotal role to play in reduction in MRSA transmission.

5.0 RESPONSIBILITY AND ACCOUNTABILITY

All healthcare workers have a responsibility to minimise the occurrence of infection. The ultimate responsibility for the implementation of guidelines, however, rests with the Hospital Manager, Director of Nursing and Clinical Director. Senior management should take advice from the Infection Prevention & Control Team on the implementation locally of national guidelines, including those on the prevention and control of MRSA (SARI, 2005). Health care staff must attend training in Infection Prevention and Control and the onus is on all line-managers to ensure this happens.

It is the responsibility of medical staff to inform patients and relatives, and healthcare institutions (hospitals, nursing homes) GPs when a patient is MRSA positive and the treatment measures (if any), which are necessary to prevent the spread of MRSA. Nursing staff should also inform, community/public health nurses, etc if a patient has MRSA on transfer or discharge. Advice on appropriate Infection Prevention & Control precautions plus MRSA information leaflets should be provided as necessary.

*Occupational Health Team are responsible for the assessment, screening and treatment of all staff.*

6.0 FREQUENCY OF REVIEW

Every four years or earlier if circumstances dictate.
7.0 **METHOD USED TO REVIEW OPERATION OF GUIDELINES**

Audits, questionnaires, laboratory surveillance

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8.0 **GUIDELINE FOR THE MANAGEMENT OF MRSA IN HOSPITALS**

**Hand Hygiene**

*HAND HYGIENE IS THE MOST IMPORTANT AND EFFECTIVE METHOD IN PREVENTING THE SPREAD OF MRSA.*

Peer-led culture of best practice in Infection Prevention and Control should perfuse the hospital organisation. “Consultants and Nurse/Midwife Managers must insist on adherence to hand hygiene by all staff.” (<Ref Hand Hygiene Guideline 2005>) Incident forms should be completed on all staff that do not adhere to the hand hygiene policy.

**Antibiotic Stewardship**

Prudent use of antibiotics (MWRH/Complex Antibiotic Guidelines 2009)

**Protective Clothing**

A disposable plastic apron and disposable non-sterile gloves must be worn when in direct contact with the patient and his/her environment (e.g. ledges, bed linen, commodes, etc.).

A risk assessment should be made regarding type of protective clothing used when caring for patients with MRSA.

All staff who have direct contact with a patient with MRSA must wear a disposable plastic apron and disposable non-sterile gloves.

All staff must remove their protective clothing before leaving the isolation room.

**Environmental Cleaning**

Cleaning and disinfection of room/areas containing MRSA patients should be carried out after all other clinical areas have been cleaned. Staff engaged in cleaning/disinfection should wear gloves and plastic aprons. Colour coding system should be used e.g. yellow disposable cloths for cleaning MRSA isolation rooms and contaminated areas. During the cleaning/disinfection process, particular attention should be paid to horizontal surfaces and dust-collecting areas, door handles, bin lids and taps, toilet flush handles, cot sides, etc. Equipment used between patient use should be disinfected e.g. stethoscopes
disinfected with alcohol wipes (MWRH Infection Prevention & Control Procedure for Cleaning & Disinfection).

It is rarely necessary to routinely take environmental specimens to ascertain the degree of environmental contamination with MRSA. When required, this will be initiated and supervised by the Infection Prevention & Control Clinical Nurse Manager or Consultant Microbiologist.

**Routine cleaning and disinfection**
The isolation environment and all equipment used by the patient should be cleaned daily with detergent

**Terminal cleaning**
On discharge, the patient’s room and equipment should be cleaned with a detergent and then disinfected with 1,000ppm chlorine releasing compound e.g. Actichlor 1.7 gram tablet – (1 tablet to 1 litre of warm water).
Curtains and bed linen should be removed and sent to the laundry according to hospital guidelines. Mattress covers and pillows should be cleaned with detergent and disinfected with Actichlor 1000 ppm (one 1.7 gram tablet to 1L water). Mattresses and pillows should be inspected for damage and replaced accordingly.

**Bed linen and clothing**
Change all bed linen, towels and patient clothing daily following patient cleansing. Ref; (MWRH linen guidelines). Place linen into linen bags carefully in order to prevent dispersal of micro-organisms into the atmosphere.

**Waste**
Waste and linen bags should be removed from the room regularly. Portering staff should remove waste at least twice daily from all wards but more frequent collections may be warranted depending on the volume of waste being generated.
Refer to MWRH Waste Guideline.

**Urinals/Bedpans/Measuring Jugs:**
Decontaminate in bedpan washer/disinfector.

**Patient Care Equipment**
Keep all equipment in the patient’s room/area for his/her sole use (e.g. stethoscopes and blood pressure devices). All charts should be kept outside the patient’s room. No extra precautions are necessary for the patient’s crockery/cutlery.
Discard protective clothing as per waste management guidelines.
Adopt stringent hand hygiene practices.
IDENTIFICATION OF MRSA PATIENTS AND SCREENING

Identification on Admission to the Hospital (see Appendix E/F)
Early identification of MRSA positive patients is important. Doctors should review past microbiology and inform bed admissions of the patient’s colonisation / infective status. Nursing staff should also review medical notes for any “Infection Control Alert” stickers. Patients should be asked if they ever had a history of MRSA positivity.
The following groups of patients should be routinely screened:

- All ICU & HDU admissions with weekly screens thereafter
- All Neonatal intensive care unit (NICU) patients with weekly screens thereafter
- All admissions to the Renal Dialysis Units
- All admissions to CCU
- All transfers from other hospitals (national & international) and from long stay institutions
- Previously known MRSA positive patients to confirm current colonisation status
- Patient due to undergo elective high risk surgery (e.g. cardiothoracic surgery in other hospitals, orthopaedic implant surgery)

Screening may be extended to other circumstances:
- During an outbreak as determined by the Infection Prevention & Control Team
- Patients with histories of multiple hospital admissions who are unwell, as recommended by the Consultant Microbiologist
- Other patients, as determined by local risk assessment

Screening Sites on Admission for Adults and Children Over One Year.

- Bilateral nares (same swab for both sides – labelled nose)
- Groin (same swab for both sides - labelled groin)

Once MRSA has been identified in any of the above sites a full set of screening cultures must be taken to determine the full MRSA colonisation status. For Adults and Children over one year, take a full screen from additional following sites;
- Any wound sites including surgical sites or abnormal skin
- Medical devices sites e.g. urinary catheter, central venous catheter
- Sputum (if present)
- CSU (if catheterised)
• Throat only if MRSA is persistent despite attempts at decolonisation. MRSA persistence must be documented on request form; otherwise specimen will not be processed!

Patients who were previously positive for MRSA and then receive antibiotics should have a full set of screening cultures repeated on a weekly basis as additional antibiotic therapy may cause re-emergence of MRSA.

See MWRH Dept. of Pathology “Laboratory User Manual” for details on turnaround times.

**Repeat Screening and Follow-up for Adults and Children Over One Year**

A full screen should be repeated 48h post cessation of the decolonisation regimen.

A patient is deemed MRSA negative, i.e. successfully decolonised, when three negative MRSA screens have been reported. Additional consecutive screens should be taken at a minimum interval of 3 full days; preferably during the working week to facilitate the microbiology laboratory requirements.

Isolation/cohort and/or barrier-nursing procedures must be continued until three consecutive full screening cultures are negative.

MRSA is difficult to eradicate from wounds and continued single room isolation is essential while hospitalised or until the wound has healed.

If screening cultures remain positive after treatment, consult the Infection Prevention & Control Clinical Nurse Manager or Consultant Microbiologist.

Patients who were previously positive for MRSA and then receive antibiotics should have a full set of screening cultures repeated on a weekly basis as additional antibiotic therapy may cause re-emergence of MRSA.

**Elective patients** (orthopaedic implants) should have screening performed at their pre-op assessment and if positive should be treated with the decolonisation regimen in advance of surgery in the community setting with follow-up screening as appropriate. It is desirable that an orthopaedic patient is MRSA negative prior to surgery but if this is not achievable, appropriate surgical prophylaxis should be given – see MW Adult Antibiotic Guidelines July 2009.

**Screening During Outbreaks or Epidemics**

Screening will be initiated by the Infection Prevention & Control Clinical Nurse Manager or Consultant Microbiologist depending on the particular circumstances and following risk assessment. This will generally be decided at an outbreak or incident meeting. Circumstances for screening may include:
• More than two new cases occurring in a general or specialist (Dialysis, Orthopaedic; Trauma, Haem & Onc) wards within a week–Full screening from all patients in that ward.
• More than three new cases occurring in a general or specialist hospital wards within a week consider screening all staff.
• One newly identified case of MRSA in critical care areas e.g. ICU, NICU, or HDU screen all patients in that area.
• More than two cases occurring in critical care areas within a week consider screening all staff.

MANAGEMENT OF MRSA FOR ADULTS AND CHILDREN OVER ONE YEAR

PATIENT ISOLATION AND COHORTING (see Appendix A)

Every hospital must take steps to prevent patient overcrowding and understaffing in order to minimise the risk of MRSA transmission. Patients identified with MRSA in high risk units must be isolated/cohorted e.g. intensive care units, orthopaedic units, Haem/Onc, vascular surgery units, and other specialised clinical areas with vulnerable patients.

Other patients who should be isolated or segregated on admission include:
- patients admitted from other hospitals or institutions
- previously known MRSA positive patients (in particular those who have wounds, abnormal skin sites or positive sputum - should be isolated or segregated as an absolute priority.

Isolation should be continued until the screening cultures confirm that the patient is MRSA negative.

Isolation accommodation
“Patients with MRSA in high risk units, e.g. ICU must be isolated
Isolation is recommended wherever possible for patients with MRSA” (SARI 2005). Contact precautions are achieved to a higher standard when patients are accommodated in isolation. Isolation room door should be kept closed if possible and appropriate signage stating “Please Report to Nurse in Charge before Entering”.

Cohorting
In certain situations two or more patients with MRSA may be cohorted according to specific criteria based on risk or probability of transmission from one patient to another. Assign designated staff if possible when MRSA patients are cohorted. This will help reduce the possibility of further spread. Intensify hygiene precautions in the area.

Barrier nursing when single room and cohorting facilities are unavailable
If an isolation room or cohorting facilities are unavailable;
The patient should be barrier nursed at the end of a ward away from other patients with IV lines, urinary catheters or wounds.
-Hygienic precautions- should be intensified in the area.

**An incident report form should be completed documenting lack of isolation facilities.**

*When possible and where compatible with other aspects of the patient’s care the following applies for patients with MRSA;*

Assign designated staff to care for patients with MRSA
Discharge patient from hospital as soon as medically fit.

**Mobilising patients with MRSA**

Patients who are medically fit can use open courtyards if the weather permits, or mobilise on link corridors and visit shops etc. However, patients should not visit other patients or other clinical areas.

**Education/information**

Prior to placing patients in single rooms, the implications of MRSA and its treatment should be explained to the patient. It is the responsibility of the patient’s consultant / team to inform the patient / relative on their MRSA positive status and it’s clinical significance. Advice regarding patient management and precautions should be given by the Nurse, accompanied by an MRSA information leaflet Appendix G). Whilst in a single room, every effort should be made to stimulate and rehabilitate the patient and he/she should not be deprived of any medical or other intervention, which they would otherwise require.

**Documentation**

Documents and charts should not be taken into the patients facilities.

**Decolonisation MRSA Regimen for Adults/ Children Over One Year**

*All decolonisation treatment should be prescribed in the Drug Kardex by medical staff.*

(See Appendix J)

**Nasal carriage/colonisation**

Mupirocin (Bactroban) nasal ointment should be applied to the anterior nares three times daily for 5 days. Treatment should rarely, if ever, be extended beyond 10 days (2 courses) because of the risk of resistance emerging. Avoid Mupirocin ointment during pregnancy or lactation. Contact Consultant Microbiologist for advice in this situation.

If the MRSA strain is Mupirocin high-level resistant, or is not eradicated after two courses of treatment, consider an alternative such as Naseptin (0.5% neomycin + 0.1% Chlorhexidine), Chlorhexidine cream, Bacitracin, or Povidone Iodine
ointment. Discuss with the Consultant Microbiologist as availability of these alternatives may vary.

**Skin carriage/colonisation**
Chlorhexidine 4% scrub or Povidone Iodine 7.5% scrub should be applied (bed bath or shower) daily x 5 days using disposable cloths/flannels. Moisten skin and apply antiseptic detergent thoroughly to all areas before rinsing in the bath or shower. If MRSA is not eradicated, the course may be repeated and may be continued if tolerated by the patient. Contact Infection Prevention and Control Team for further advice on alternative treatment.

**Hair carriage/colonisation**
Chlorhexidine 4% scrub used as shampoo twice weekly. *Refer to manufacturers’ instructions regarding contraindications and specific instructions when using treatments for MRSA.*

**Wounds, skin ulcers and pressure sores**
Successful decolonisation is seldom achieved when there are broken areas of skin and attempts at same will depend on an individual patient assessment and in consultation with the patient's clinician (refer to Wound Care Document); Mupirocin topical ointment may be applied to small dry crusted wounds bd x 5 days. Avoid Mupirocin ointment on large wounds and large denuded areas. Do not use in pregnancy or lactation. Contact the Tissue Viability Nurse or Consultant Microbiologist. Whilst treatment with Mupirocin is confined to a maximum of two consecutive courses, other treatments may be prescribed until screening is negative. Discontinue chlorhexidine if hypersensitivity occurs and contact the Infection Prevention & Control Team. If a Peg site is colonised with MRSA, please contact the Consultant Microbiologist for advice and refer to the Clinical Guideline for the selection and management of patients receiving nutritional support via gastrostomy.

**Throat Carriage**
The value of treatment e.g. antiseptic gargles or sprays is uncertain but may reduce the bio burden of the organism. *Note: Soap may inactivate Chlorhexidine - Please refer to manufacturers’ instructions regarding contraindications and specific instructions when using treatments for MRSA.*
9.0 MANAGEMENT OF MRSA IN NEONATES AND CHILDREN UNDER ONE YEAR

Screening Sites on Admission for Neonates and Infants under One Year
- Bilateral nares
- Umbilicus
- Groin/ Perineum.

Please refer to Appendix B for guidelines on management of MRSA in neonates and infants under one year.

10. TRANSFER OF PATIENTS

Internal transfer:
Transfer within the hospital from one ward to another should be kept to a minimum. The receiving ward or clinical area should be notified and advised on the necessary precautions. The patient should be transferred to an isolation room. During actual transportation between departments it is important to maintain patient confidentiality regarding their MRSA status. The patient is not normally in direct contact with surrounding environmental surfaces or the staff member’s clothing during actual transportation, aprons or gloves are not required, unless directed under standard precautions.

Specialised departments
Visits to specialised departments should be kept to a minimum and if possible special procedures treatments should be carried out at the end of the list e.g. theatre, x-ray, physiotherapy treatment etc.
Inform staff. Following the procedure or intervention, instruments, utensils and the environment should be decontaminated thoroughly. A good principle is to minimise the length of time spent in that department including waiting periods by MRSA patients.

Theatre
MRSA positivity is not a contraindication to surgery, especially acute surgery. However, it is important that theatre nursing staff are informed in advance that the patient is MRSA positive. For prosthetic surgery, e.g. hip replacement it may be preferable to postpone surgery until the patient is decolonised. Otherwise, cover lesions with an impermeable dressing and place patient at the end of the operating list.
Refer to antibiotic guidelines for information on appropriate surgical prophylaxis.
Recovery Room
Patients with MRSA are at risk of dispersing MRSA in the recovery room and extra precautions are necessary to prevent spread to other patients. Some patients are more at risk of dispersing MRSA; e.g. large open wounds, previous surgical wounds, lacerations, pressures sores, ulcers and other soft tissue infection. Patients with MRSA must be segregated at one end of the recovery area away from other patients. Assign one nurse if possible to care for these patients.

Outpatient department
Inform out-patient nursing staff of the patient’s MRSA status. Attend to the patient promptly if possible to limit the time spent in OPD.

Transfer to other hospitals or institutions:
Inform the receiving hospitals or institutions that the patient has MRSA and complete MRSA Transfer Form see Appendix I. Patients, who return to nursing homes or other long-term care facilities from acute hospitals where they may have acquired MRSA, do not usually present a problem to other residents if standard hygienic precautions are adhered to during their stay.

“MRSA must not be a reason for exclusion of patients from rehabilitation or discharge to community units, special hospitals or to the patients family home” (SARI 2005)

Transfer via ambulance:
It is not practical to reserve an ambulance solely for MRSA patient transfer. Patients with MRSA may travel with non-MRSA patients as long as standard Infection Prevention & Control precautions such as hand hygiene and protective clothing are taken. Ensure that patients’ wounds are covered with an impermeable dressing. Tick special precautions on ambulance request form. Ensure ambulance staff are aware of their responsibility to inform of the patient’s MRSA status to receiving centre. It is recommended that MRSA positive patients should not travel in an ambulance with the following patients e.g. pre- and post - transplant or cardiothoracic patients and neonatal babies. A risk assessment must be undertaken to determine other patients at high risk of contracting MRSA.

Death
No extra special precautions are required when a patient has expired.
11.0 SURVEILLANCE AND SCREENING OF STAFF
Staff members positive for MRSA are often transiently colonised with MRSA rather than being the primary source of spread. However, it is occasionally necessary when MRSA outbreaks are not being brought under control to screen staff for MRSA. The Occupational Health Team and the Infection Prevention & Control Team will decide if screening is necessary and oversee the management of such a situation. It is the responsibility of all staff to co-operate and comply with MRSA screening and eradication protocols. Staff should not screen for MRSA unless ordered by a clinician, occupational health or Infection Prevention & Control team.
Refer to Occupational Health MRSA Guideline for the Treatment and Detection of MRSA in Healthcare workers available on the intranet.
12.0 MEASURES TO CONTROL AND PREVENT MRSA

- Hand hygiene
- Clean environment
- Early identification
- Isolation
- Screening
- Decolonisation
- Antibiotic Stewardship
- Surveillance
- Early Discharge
13.0 REFERENCES

Childrens University Hospital Temple Street, 2006.

Health Service Executive HSE West (Mid West) 2008 Draft Policy on the Detection and Treatment of Meticillin Resistant Staphylococcus Aureus (MRSA) In Health Care Workers

Health Protection Surveillance Centre (HPSC) SARI Infection Control Sub committee (2005) A Strategy for the Control of Antimicrobial Resistance in Ireland SARI. The Control and Prevention of MRSA in Hospitals and in the Community. www.hpsc.ie


Mid Western Regional Hospitals (MWRH) (2008); Draft Infection Prevention & Control Procedures for Cleaning & Disinfection.

Mid Western Regional Hospitals (MWRHs) (2007); Policy on Healthcare Risk Waste and its Segregation & Disposal within the HSE Mid-West Area.

Mid Western Regional Hospitals (MWRHs) (2007); Guideline for the Handling and Segregation of Linen.

Mid Western Regional Hospitals (MWRHs) (2007); Infection Prevention & Control Standard Precautions Guideline.

Mid Western Regional Hospitals (MWRHs) (2005); Hand Hygiene Policy.

Mid Western Regional Hospitals (MWRHs) (2006); Guidelines for Isolation Precautions.

Mid Western Regional Hospitals (MWRHs) (2004); Guidelines for Cleaning and Disinfection of Equipment and the Environment.


Mid Western Regional Hospitals (MWRH) (2007). Umbilical Care Guideline


Wound Assessment in the Mid Western Regional Hospital (2006)
APPENDIX A - Meticillin-Resistant Staphylococcus aureus (MRSA) Isolation Sheet

Standard precautions are necessary in the care of all patients. However, extra precautions (transmission-based precautions) are necessary in the care of patients with communicable diseases.

MRSA Transmission of infection: Contact, airborne routes of spread.

Extra precautions involve the following:-

- **Single Room** necessary until three screening cultures are negative.

- **Keep door closed if possible** with notice placed outside the isolation room door stating: ‘Please report to nurse in charge before entering’.

- **Patient education**: Isolation precautions must be explained to the patient and relatives and the MRSA information leaflet given.

- **Hand hygiene**. All members of staff must carry out hand hygiene after direct contact with the patient and his/her environment and before leaving the isolation room. Once outside the room use alcohol hand rubs if hands have touched the door handles within the isolation room. If patients are cohorted, hand hygiene must be carried out between each patient contact.

- **Alcohol hand rubs** should be used between patient contacts on visibly clean hands.

- **Treatment**: For treatment of MRSA in the nose, skin or wounds refer to Appendix C for Adults and Children over one year and Appendix B for treatment of neonates and infants under one year. Additionally, Appendix D provides a summary of treatment protocols. For further advice and for MRSA positive Peg sites, contact the Infection Prevention & Control Clinical Nurse Manager/Consultant Microbiologist or the Occupational Health Physician.

- **Personal protective clothing**: A risk assessment should be made regarding re. type of protective clothing used when caring for patients with MRSA.
• **Plastic Aprons:** Disposable aprons should be worn for direct contact only with patients and disposed of prior to leaving the room. If patients are cohorted, aprons must be changed between contact with each patient.

• **Disposable gloves:** Gloves not required for entering an MRSA isolation room or cohort bed space. Gloves should be worn when in contact with the patient and any bodily fluids. Gloves should be removed and disposed of following a task and prior to leaving the room.

• **Masks:** Not necessary unless splash-back from body fluids is anticipated (Standard Precautions).

• Keep all equipment in the patient’s room/area for his/her sole use (e.g. stethoscopes and blood pressure devices). All charts and documentation should be kept outside the patient’s room. No extra precautions are necessary for the patient’s crockery/cutlery.

• **Urinals/Bedpans/Measuring Jugs:** Decontaminate in bedpan washer/disinfector. Discard protective clothing as per waste management guidelines. Carry out hand hygiene.

• **Crockery/Cutlery:** No extra precautions necessary.

• **Bed linen and clothing:** Change all bed linen, towels and patient clothing daily following patient cleansing. Bag and send to laundry as per hospital guidelines. **Environmental daily cleaning:** Inform ward cleaning attendants that there is a patient in isolation all surfaces should be cleaned thoroughly with a detergent.

• **Terminal cleaning and disinfection:** Inform ward-cleaning attendants that there is a patient in isolation. All surfaces should be cleaned with a detergent followed by a chlorine releasing compound e.g. Actichlor 1000 ppm (1.7 gram tablets) = 1 tablet to 1 Litre water. Walls and ceiling not part of a terminal clean. Mattress and pillows covers should be washed with detergent and water followed by Actichlor 1000ppm and rinsed well afterwards. **Disposable cloths** must be used for cleaning. Mop heads should be sent to the laundry in a special laundry bag. Isolation rooms should be cleaned and disinfected last.

• **Visitors:** The isolation precautions must be explained to all visitors while respecting issues of patient confidentiality. It is unnecessary for visitors to wear protective clothing. Visitors are only required to wash and dry their hands before leaving the room.

• **Waste:** Follow hospital policy with regard to waste management
Appendix B: Management of MRSA in Neonates and Infants under One Year

(At the discretion and in consultation with the Consultant Paediatrician)
Doctors should prescribe decolonisation regimen in Drug Kardex Neonates/Infants (birth to 3 months)

Treatment / Decolonisation
- **Nose MRSA positive**
  Mupirocin (Bactroban) Nasal Ointment three times per day for 5 days
- **Groin/ Perineum MRSA positive**
  Octenisan antimicrobial body wash lotion instead of soap/bath solution for full body washing daily for 5 days.
- **Skin folds MRSA positive** - e.g. axilla, groin, elbow joints and behind knees, apply Chlorhexidine acetate 1% (CX powder) sparingly once daily after bathing for 5 days.

Procedure for using Octenisan:
- Wet the skin
- Apply Octenisan to disposable cloth
- Wash body with Octenisan and observe a contact time of 3 minutes
- Rinse off the Octenisan
- Dry body with a clean towel
- Ensure that hair is washed with Octenisan on Day 2 and 4

Additional procedures:
- Change wash cloths, towel, cot/incubator linen and clothing daily for the duration of treatment
- Send to laundry as per normal laundry guidelines

**Umbilicus MRSA positive**
- Clean umbilicus with 70% alcohol (Surgical spirit) and allow to dry
- Sparingly apply Chlorhexidine acetate 1% (CX powder) daily for five days or up to three times daily at nappy change

If more than one site is positive Octenisan, Bactroban and CX powder should commence on the same day and should be prescribed in the patient’s Medication Record.
Neonates/Infants Repeat screening (nose, umbilicus and groin/perineum) and follow-up

**Step 1** Re-screen on the third day following completion of treatment. If not on treatment rescreen every fourth day until three consecutive screens negative

**Step 2** If any sites remain positive treat positive sites only. Contact Infection Prevention & Control team if sites remain positive.

**Infants over 3 months**

Use antiseptic e.g. Chlorhexidine gluconate 4% (Hydrex Hibiscrub) or Octenisan instead of liquid soap for body washing once daily for 5 days. Use disposable cloth instead of face towel or flannel and dispose of this after single use.

**Nasal Colonisation**

“Mupirocin” nasal ointment may be applied to the anterior nares three times a day for five days. Treatment should rarely if ever be extended beyond ten days (2 courses) because of the risk of resistance emerging.

**Carriage at other skin sites:**

- **Groin - Intact skin**
  After bathing and drying the skin, sparingly apply a light dusting of Chlorhexidine acetate 1% (CX powder) to the nappy area and flexures daily for five days.

- **Wounds, stoma sites etc**
  At the discretion of the Consultant Paediatrician or Infection Prevention & Control Clinical Nurse Manager or Consultant Microbiologist, a local antiseptic Chlorhexidine gluconate 0.05% (Unisept) may be applied twice daily (Department of Health, 1996).

Children who are colonised or infected in sites of dermatitis or other skin conditions should be referred to a specialist (Department of Health, 1996).
Repeat Screening Cultures and Protocols for Neonates and Infants under One Year

- Explain the procedure to parents and provide information leaflet. Appendix H

- Repeat screening cultures from nares, umbilicus, perineum.

- Repeat screening specimens after two days following the end of treatment and on two additional occasions at a minimum interval of 72 hours apart.

- Continue isolation and/or barrier-nursing procedures until three consecutive sets of screening cultures are negative.

- In the event that screening specimens remain positive after treatment consult the Infection Prevention & Control Clinical Nurse Manager or Consultant Microbiologist or Paediatrician.

- Neonates/infants who were previously positive for MRSA and then receive antibiotics should have a full set of screening cultures repeated on a weekly basis as additional antibiotic therapy may cause re-emergence of MRSA.

- Repeat screening procedures weekly in infants in Intensive Care or Special Care Units.

Additional Procedures

- Change all bed linen and towels daily. (MWRH linen guidelines)
- Change baby clothes daily after body wash.
- Washable garments should be changed as often as possible at least daily.

Environmental Cleaning and Disinfection
Decontamination of Incubators
After cleaning, incubators should be disinfected with a chlorine releasing compound e.g. (1,000ppm of available chlorine (Actichlor) 1 tablet to 1 Litre of water (one 1.7 gram tablet) left for thirty minutes and then rinsed well with detergent and water.
Appendix C: MRSA Decolonisation Protocol

Decolonisation of Adults and Children >1 year

<table>
<thead>
<tr>
<th>Day No</th>
<th>Treatment</th>
</tr>
</thead>
</table>
| 1      | Nasal MRSA – Mupirocin nasal ointment three times daily  
        | Skin carriage – Chlorhexidine scrub daily  
        | Apply moisturising lotion |
| 2      | Nasal MRSA – Mupirocin nasal ointment three times daily  
        | Skin carriage – Chlorhexidine scrub daily  
        | Apply moisturising lotion |
| 3      | Nasal MRSA – Mupirocin nasal ointment three times daily  
        | Skin carriage – Chlorhexidine scrub daily  
        | Apply moisturising lotion |
| 4      | Nasal MRSA – Mupirocin nasal ointment three times daily  
        | Skin carriage – Chlorhexidine scrub daily  
        | Apply moisturising lotion |
| 5      | Nasal MRSA – Mupirocin nasal ointment three times daily  
        | Skin carriage – Chlorhexidine scrub daily  
        | Apply moisturising lotion |
| 6      | Stop all treatment, wash patient as normal |
| 7      | Stop all treatment, wash patient as normal |
| 8      | Rescreen the patient |

- Mupirocin should not be used in pregnancy or lactation- contact Consultant Microbiologist for advice
- Mupirocin should not be extended beyond 2 courses
- Isolation until 3 consecutive full screening cultures are negative
- Wet swab with sterile water prior to screening
- Patient previously MRSA positive who receive antibiotic should receive weekly screening.

Wounds, skin ulcers & pressure sores:

- Treatment is in consultation with the physician
- Mupirocin topical ointment to small dry wounds bd x 5 days. (Do not apply to large wounds or denuded areas).
- Mupirocin is confined to a max of 2 consecutive courses.
- For further information or guidance contact Infection Prevention & Control Team, particularly for management of MRSA positive Peg sites.
MRSA TOPICAL DECOLONISATION PROTOCOL for 
Adults and Children > one year of age

- Wash hair with Chlorhexidine 4% scrub on the specified days
- Wash the body daily with Chlorhexidine, in place of soap. Use disposable cloths.
- Apply Mupirocin nasal ointment (Bactroban®) three times per day as follows:
  1. Wash hands
  2. Blow the nose to remove debris
  3. Unscrew the cap and apply a small amount of ointment (size of a match head) onto both ends of cotton bud
  4. Apply one end to the first nostril and the second end to the opposite nostril
  5. Close the nostrils by pressing the sides of the nose together
- Wash the teeth or dentures twice a day
# APPENDIX D
## MRSA TREATMENT RECORD

**PATIENT NAME:**

**RECORD NO:**

**1st Identified Positive Site:**

**DATE:**

Followed by full screening culture

<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Day</th>
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</table>

**TREATMENT:**

FOR 5 DAYS

*Hold Treatment On Day 6 & 7.
Repeat Full Screening Cultures on Day 8.*

**Date:**

*sites only*
Appendix E: MRSA SCREENING PROTOCOL

On identification of 1 positive MRSA site full screening cultures must be taken

FULL SCREENING CULTURES

• Nares
• Groin / or perineum
• Sputum if present
• CSU if catheterised
• Any wound sites or abnormal skin

REPEAT SCREENING AND FOLLOW UP

• Repeat full screening cultures 2 days following the end of treatment and on 2 additional occasions at a minimum interval of 72 hours apart between the second and third screening cultures.
• Continue isolation & or barrier nursing procedures until 3 consecutive full screening cultures are negative.
• If screening cultures remain positive, repeat treatment and then rescreen.
• If not on treatment full screen should be taken at a minimum interval of 72 hours apart.
# APPENDIX F
## MRSA Screening Results

Patients Name: ____________________ Chart Number: ___________

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<th>Sites</th>
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<td>CSU</td>
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<td>Other (Please specify)</td>
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</tbody>
</table>
Appendix G: MRSA Information

- Asking your relatives and friends not to visit in large groups.
- If you are in a single room (isolated) only your close family / relatives / friends should visit you.
- Ask your Nurse / Midwife, Sister in Charge, or Clinical Leader to explain why you are transferred to a single room (isolated).

Clean and dry your hands:

- Before eating or drinking.
- After going to the toilet and blowing your nose.
- Before and after dealing with a wound.
- Before and after assisting with personal care for any other member of your family.
- After you do household tasks such as cleaning. If unfortunately, you have to be re-admitted to hospital or another place of care – please tell your Nurse / Midwife / doctor if you were MRSA positive when you were last in patient. It will be already documented in your hospital records.

“When did you last carry out good hand hygiene?”

References / Links

www.hpsc.ie
www.icn.co.uk
www.ich.ucl.ac.uk/factsheets/diseases
www.rcn.org.uk/mrsa

Developed by The Infection Control Team, MWRH’s, in Consultation with Staff and Patients

Infection Prevention & Control Team, MWRH

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Version 3; Review Date 2013
This is a controlled document and may be subject to change at any time. 09/12/2009
Can my visitors get MRSA?

If visitors carry out simple basic precautions such as hand cleansing and drying before entering, and leaving, the hospital and after helping to care for you, they will, to a large extent, protect themselves from becoming colonised with MRSA. If visitors do acquire the bacteria, it will usually cause them no harm, they will probably be unaware of it and it will be temporary and will not need to be investigated or treated.

What can I do at home to stop the spread of MRSA?

Discharged home from hospital or nursing home is an important step on the road to recovery. You and your family may be worried about being at home in view of the strict measures that may have been practised while you were in hospital. These measures were aimed at controlling and reducing the spread of all germs, not just MRSA, to other vulnerable patients who are at risk because of their illness or surgery.

At home these risks are reduced but it is important that you continue to follow good personal hygiene rules (whether you have MRSA or not).

What you can do to help stop the spread of MRSA and other infections?

When you are admitted to hospital or other places of care, for example a nursing home, you are exchanging the familiar surrounding of your own home to share a ward or home with other people. You may be more vulnerable because of your illness, medication or surgery. By its very nature a hospital, or other place of care, exposes you to other peoples' germs. You can help yourself and other patients by:

- Always washing and drying your hands after visiting the toilet and before you eat.

How is MRSA and other health care associated infections spread prevented?

- Good hand hygiene practice – by staff and yourself.
- Hands should be cleansed thoroughly with soap and water or alcohol gel. Ensuring that all surfaces are cleansed taking care not to miss the spaces between fingers, thumbs and the backs of the hands. After using soap and water rinse well and dry completely.
- Not touching or fiddling with your wound or any device that is in your arm / leg/ bladder or other body cavity – for example a drip or urinary catheter.
- Not exposing your wound to show your visitors.
- Keeping the space around you tidy and undisturbed so that the cleaning staff can access all surfaces to remove dust easily. Your visitors or relatives could help you to do this.
- Telling your Nurse / Midwife, or Clinical Leader, if you notice any dirt or dust in the ward.
- Showering as frequently as you are able.
- Asking your visitors to wash and dry their hands thoroughly before and after entering the ward / nursing home or use the alcohol gel provided on visibly clean hands and not to sit on your bed or use the patients' toilets.
- Not sharing possessions or equipment with other patients unless it has been cleaned.
If your baby / child is colonised (a carrier) with MRSA?

If your baby is colonised with MRSA he/she will be treated with nasal ointment for MRSA in the nose. The staff will explain if there is any other treatment necessary. Your baby/child is clear of MRSA when these sets of swabs are negative. Swabs must be taken at least one week apart if he/she is on treatment. If no treatment is required swabs can be taken these days a part.

Infection with MRSA

Your baby/child may have an infection due to some other bacteria (germs) and not MRSA. If your baby/child has an infection due to MRSA, the doctors will decide what antibiotics to give. The antibiotics are usually given through a "drip" (into a vein).

Do I need to take any special precautions in the Neonatal Unit, Maternity/Paediatric Unit?

Once your baby/child is back at home, normal hygiene standards are sufficient. Once out of the hospital environment the MRSA will generally disappear. The staff in the hospital (before discharge) and G.P. will advise you if further treatment is required. Health care workers visiting your home may need to take precautions i.e. wearing gloves and aprons if in contact with your baby/child to prevent spread to other vulnerable patients which they may be looking after.

Do I need to tell anyone?

If your baby/child needs to come back into hospital or visit another hospital or healthcare institution, please tell the nurse/doctor/baby that he/she had MRSA when last in hospital. It will already be documented in the hospital notes. If you have other children attending school or child minding facilities there is no need to inform the person in charge that your baby/child has MRSA as there is no risk to the other children getting MRSA. Your Doctor/G.P or Nurse/Midwife will advise you.

Will my baby / child's visitors or I acquire MRSA?

Hand hygiene before and after caring for your baby/child will minimise the chances of you picking up MRSA. Most colonised babies, who are not patients in hospital, will lose MRSA in a short period of time. If you recently had an operation, for example a caesarean section, make sure you wash your hands before and after touching or cleaning the wound.

If I have any other questions?

The nurse/nurses/doctor caring for your baby/child will answer any other questions you have.

References/Links

www.chp.nhs.uk
www.nhsdirect.nhs.uk
www.ch.nhs.uk/Healthtopics/Healthtopic/demonstration/skin/Clinical-Guideline-Skin-Infections/Oxford-Community-Skin-Infection-Department
www.mrc.org.uk/dinofus

Developed by The Infection Control Team, MWRH's in consultation with Staff and Patients.
MRSA and other healthcare associated infections

Information for Parents

This leaflet is for parents of children in the Mid-Western Regional Maternity Hospital, Ennis Road, Limerick and the Paediatric Unit, Mid-Western Regional Hospital, Dooradoyle, Limerick.

General Information on MRSA

What is MRSA?

MRSA has recently received a lot of attention and the media often refer to it as the ‘hospital superbug’. MRSA stands for Methicillin-Resistant Staphylococcus Aureus.

MRSA is part of the Staphylococcus aureus (S.A.) bacteria family. MRSA first appeared in 1961 and is particularly associated with hospitals, nursing homes and generally other health care facilities.

Staphylococcus aureus (S.A.) is a type of bacteria (germ) which can live harmlessly on human skin, but can sometimes cause a number of common infections. It is found in the nose of 20-40% of normal healthy people and in skin creases. It does not cause a problem unless it gets into a skin break or enters the bloodstream, but it can cause a simple infection, such as a boil, or enter your bloodstream which can cause a more serious infection.

If it enters pores, it can also cause boils or an infection. It is sensitive to, and will be killed by, most commonly used antibiotics. MRSA is a particular type of Staphylococcus aureus (S.A.), which has developed resistance to most antibiotics. It can live harmlessly on the skin and in some chronic wounds such as leg ulcers (colonisation), but can cause problems if it does get into a skin break such as a surgical wound or a normally sterile body cavity, such as your (urine) bladder. MRSA is difficult to treat because there are only a few antibiotics that are effective.

What is the difference between MRSA colonisation (carrier) and MRSA infection?

It is important to understand the difference between MRSA colonisation (carrier) and MRSA infection. Babies who carry MRSA are said to be colonised and are not at risk of developing MRSA infection, whereas babies who have MRSA are colonised which does not cause disease or any ill effects to themselves. In fact everybody (including babies) has microorganisms (bacteria/viruses/germs) living harmlessly on our skin and in our intestines (bacteria living harmlessly on our skin and in our intestines (bacteria/gut) and everyone is colonised by many kinds of bacteria all the time. The vast majority of babies who have MRSA are colonised and once discharged from hospital, the infection goes away. Babies who are colonised with MRSA look and feel well. However in hospitals MRSA can cause serious infection to vulnerable babies such as those with serious illness and undergoing operations and procedures. MRSA infection occurs if the MRSA enters the bloodstream or sterile area (known as septicaemia or “blood poisoning”) which can be treated by antibiotics (antimicrobials). Babies infected with MRSA are usually in hospital because they are quite ill. It is important to remember that some ill babies are at risk of getting MRSA infection (and other infections) because of the nature of their illness, despite taking precautions.

How do I know if my baby has MRSA?

All babies admitted to the Intensive Care and High Dependency in the Maternity Hospital, are routinely screened (swabs taken) and weekly thereafter to detect MRSA. This is done by taking a swab (from your baby’s nose and umbilicus (belly button) and other skin areas. Screening (swabs taken) helps to prevent and control the spread of MRSA, which is recommended in high risk areas such as the Intensive Care unit. Babies in the wards of the Maternity Hospital are not routinely screened for MRSA. Screening will be carried out if it is indicated ie. sticky eyes/umbilicus (belly button) etc. Children are not routinely screened for MRSA unless transferred from another hospital (institution) or it is indicated as part of the tests ordered by the doctor.

How else might this affect the care of my baby/child?

Whether your baby/child is colonised (carrier) or infected with MRSA, all staff attending your baby will wear gloves and a plastic aprons or gown when in direct contact with your baby. She/he may be moved to a single room (isolation room/cubicle). This is to prevent the spread of MRSA to other babies in the unit or the ward.
APPENDIX I

Mid-Western Regional Complex
MRSA TRANSFER FORM

It is recommended that this transfer form is used to notify the relevant health care professionals that a patient is or was colonised/infected with Meticillin resistant Staphylococcus aureus (MRSA). This is not a discharge letter.

Transferring Hospital

Patient Name

The above patient was found to be colonised/infected with MRSA. Sites found to be positive include the following.

The following treatment was administered (treatment and dates).

The most recent screening cultures were obtained on (date).

(Delete whichever is not applicable).

• All sites were negative.
• The following sites were positive.

The present treatment on transfer is as follows:

The treatment should be continued for ____________ days.

In the event that the patient has to be admitted to another hospital, please advise the receiving hospital/nursing home that the patient was MRSA positive

Yours sincerely

______________________________
### APPENDIX J

Propriety Preparations, Indications and Constituents of Some Commonly Used Treatments for MRSA (SARI 2005)

*In case of hypersensitivity/contraindications seek special advice

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<thead>
<tr>
<th>Proprietary Preparations</th>
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<td><strong>HAND AND BODY WASHING</strong></td>
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<tr>
<td>Hydrex</td>
<td>Chlorhexidine gluconate 4% in a surfactant solution</td>
<td>Use as a liquid soap. Moisten body and apply directly (if tolerated) especially to positive sites and shower/wash bodily surfaces.</td>
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<td>Hibiscrub</td>
<td>Povidone iodine 7.5% in a surfactant solution</td>
<td>Use as a liquid soap</td>
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<td>Cocamidopropylamine, Oxide PEG-7 Glyceryl Cocoate, Glycerin, Hydroxyethylcellulose, Lactic Acid, Octenidine HCL, Allantoin.</td>
<td>Use as a liquid soap</td>
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