St George's Healthcare NHS
NHS Trust

Meticillin-Resistant *Staphylococcus aureus* (MRSA) Protocol

Policy Profile			
Policy Reference:	Clinical care protocol 20. App D Clin 2.0		
Version:	4.1		
Author:	Ruth Law, Lead Nurse Infection Control		
Executive sponsor:	Director of Infection Prevention and Control		
Target audience:	All Trust Staff		
Date issued:	6 December 2012		
Review date:	April 2014		
Consultation			
Key individuals and committees consulted during drafting	Infection Control Committee	**Dates**	Feb 2012
		Dates	
Approval			
Approval Committee:	Infection Control Committee		
Date:	2012		
Ratification			
Ratification Committee:	Policy Ratification Group (Chair's action)		
Date:	06 December 2012		

Document History			
Version	**Date**	**Review date**	**Comments**
V.1.0	2002	2004	
V.2.0	2009	2012	
V.3.0	February 2010	February 2013	
V.4.0	January 2011	April 2014	
V4.1	December 2012	April 2014	Amended as PCR test no longer used.

Contents

RELATED TRUST POLICIES

Infection Control Policy
Hand Hygiene Protocol 2010
Protocol for the Isolation of Patients
Staff /Student Occupational Health Service Policy
Transfer of Patients
Discharge Policy

Executive Summary

Staphylococcus aureus is a bacterium carried on the skin or in the nose of 20-30% of the general population and has the potential to cause a range of invasive diseases. MRSA is an abbreviation of Meticillin resistant *S. aureus* and is resistant to antibiotics commonly used to treat *S. aureus* making it harder to treat infections caused by MRSA. It was first reported in 1961 and is now endemic in most UK hospitals. Specific measures have been shown to be effective in preventing and controlling MRSA. Healthcare professionals are required to take reasonable precautions to minimise spread and it is their professional responsibility to do so.

This protocol provides information on the transmission, screening, decolonisation and infection control precautions for MRSA. It includes detail regarding patients with MRSA undergoing surgical procedures and information on transfers, discharges, diseased patients and staff

Scope

This policy applies to all staff (temporary or permanent) **working in all the locations registered by St George's Healthcare NHS Trus**t with the Care Quality Commission, to provide its regulated activities.

This also includes volunteers, contractors, students and/or trainees.

This protocol is an appendix to the Infection Control Policy. Refer to the Infection Control Policy for information on the criteria, responsibilities and systems required to prevent and control Healthcare Associated Infections (HCAIs).

Meticillin Resistant *Staphylococcus Aureus* (MRSA) Protocol

1. Introduction

Staphylococcus aureus is a bacterium carried on the skin or in the nose of 20-30% of the general population. It has the potential to cause a range of invasive disease including post operative wound infection; bone and joint infections; endocarditis; urinary tract infection; septicaemia and bacteraemia.

MRSA is an abbreviation of Meticillin Resistant *S. aureus*. MRSA is resistant to antibiotics commonly used to treat *S. aureus*. It was first reported in 1961 and is now endemic in most UK hospitals. Specific measures have been shown to be effective and are necessary for prevention and control because MRSA can cause serious illness which is harder to treat due to limited therapeutic options and results in additional healthcare costs. The emergence of Vancomycin-intermediate and resistant *S. aureus* (VISA and VRSA) are further cause for concern.

Patients and the public are increasingly aware of MRSA and regard it as an indicator of the quality of patient care. They require re-assurance that all healthcare professionals are taking reasonable precautions to minimise spread and it is their professional responsibility to do so.

2. MRSA Colonisation and Infection

The majority of patients who acquire MRSA are merely colonised, not ill and do not require antibiotic therapy. A proportion, possibly up to one third, depending on patient population, develop infection which may become invasive and in some cases contribute to, or result in death.

MRSA Infection: There are signs and symptoms of infection caused by MRSA.

MRSA Colonisation: MRSA is found on the skin or mucous membranes but there are no signs or symptoms of infection.

3. Transmission of MRSA

Patients colonised and infected with MRSA are the prime reservoir of MRSA which may then be transmitted to other patients predominantly via transient carriage on staff hands. Person-to-person transmission is usually associated with poor hand hygiene before and after patient contact.

Colonised or infected patients or staff can carry MRSA on skin scales or in their sputum, which may result in airborne spread that can contaminate the general environment or other patients.

Equipment that has not been adequately decontaminated can carry MRSA and with subsequent use MRSA may be passed onto another patient. Uniforms and curtains can also harbour MRSA.

Staff with eczema, dermatitis and psoriasis should not work in the clinical area while they have active skin conditions, such as breaks in the skin, which can harbour organisms. Nail biters can carry MRSA on damaged skin surrounding the nail as can staff with cuts, insect bites or paronychia (infection of the fold of skin at the margin of a nail).

4. Patient Risk Categories

4.1 High Risk Patients

The following patients are considered to be high risk patients for MRSA, either because they are more likely to have MRSA or because they are more susceptible to MRSA infection and its complications:

- Elderly patients > 65 years
- Critical care patients – GICU, NICU, CTICU, NNU, PICU
- All adult surgery (general, trauma & orthopaedics, plastics, urology, vascular, ENT, gynaecology, cardiothoracics, neurosurgery)
- Renal patients
- Haematology
- Oncology
- Transfers from other care providers
- Transfers from abroad
- Previously positive MRSA patients
- Hospital inpatient for >48hrs. in last 12 months.

4.2 Low Risk Patients

The following patients are low risk;

- Acute medicine
- Care of the Elderly
- Infectious Diseases
- Paediatics
- Obstetrics

5. Screening for MRSA

5.1 Definition of Screening

MRSA screening is the microbiological testing of a sample taken from the potential carriage sites of a patient, on, before or during admission. It is the process by which patients who are colonised with MRSA are identified.

5.2 Methods of Screening

5.2.1 Culture

Culture screening for MRSA is directed at the common sites of carriage and infection. Wards and departments should send screens for culture, unless otherwise directed or agreed. A routine MRSA screen for culture includes the following;

- **Nose** (anterior nares) – one swab for both nostrils.
- **Groin** – one swab for both groins.
- **Skin lesions, wounds, I.V. line sites and other breaks in the skin**
- **CSU** – if catheterised.
- **Sputum** – if productive.

5. 3 Procedure for Taking Swabs and Specimens for Screening

1. Decontaminate hands as per Hand Hygiene Protocol 2010
2. Moisten microbiology swabs with normal saline
3. Rub and rotate swab firmly over each area.
4. Up to 4 specimens to be sent to microbiology on multiple screening forms available from the Infection Control Department (xtn. 2459) or the Infection Control intranet website. **Culture** specimens to be sent on MRSA screening **Form 1** available on the Infection Control intranet website.
5. Use standard pathology request form for patients at Queen Mary's hospital, asking for MRSA screen

5. 4 Screening of Elective Admissions

All relevant elective admissions (surgical and medical) must be routinely screened.

A small number of patients are currently **exempt** from the screening requirement. These include:

- **Day case ophthalmology**
- **Day case dental**
- **Day case endoscopy**
- **Minor dermatology procedures**, e.g. warts or other liquid nitrogen applications
- **Children/paediatrics** do not need to be screened unless:
- admitted to HDU/PICU
- oncology patient
- transferred from other care providers
- transferred from abroad
- previously positive MRSA patients
- hospital inpatient for >48hrs. in last 12 months.
- **Maternity/obstetrics** except for elective caesareans and any high risk cases, i.e. high risk of complications in the mother and/or potential complications in the baby, (e.g. likely to need SCBU, NICU because of size or known complications or risk factors.)
- **Termination of Pregnancy patients** unless there are risk factors that indicate otherwise.
- **Mental Health Patients**.

Screening of all **relevant elective admissions** should preferably take place prior to admission e.g. at pre-admission clinic appointments, including those patients previously known to have been MRSA positive.

Booked admissions for Gwynne Holford ward, e.g. amputee patients, should preferably be sceened prior to admission at assessment visits.

On admission of elective patients to the ward/department the nurse must check that a MRSA screen has been taken at pre-admission and if not the patient must be screened as soon as possible and within 24 hours of being admitted to the ward.

5.5 Screening of Emergency admissions

5.5.1 Patients to be screened

All relevant emergency admissions must be screened regardless of the route of attendance e.g. via A&E, GP, outpatient clinic, rapid access clinic or from another hospital. Screening should be done as soon as possible during the admission process but should not delay urgent clinical treatment or affect the four hour wait in A&E. Typically, screens from adult patients should be taken while on the medical admission unit e.g. Richmond and Amyand wards, but would also need to be taken when the patient is admitted via other routes either in outpatients or on other wards. This screen should be recorded on patient documents and the information handed over to staff, as required.

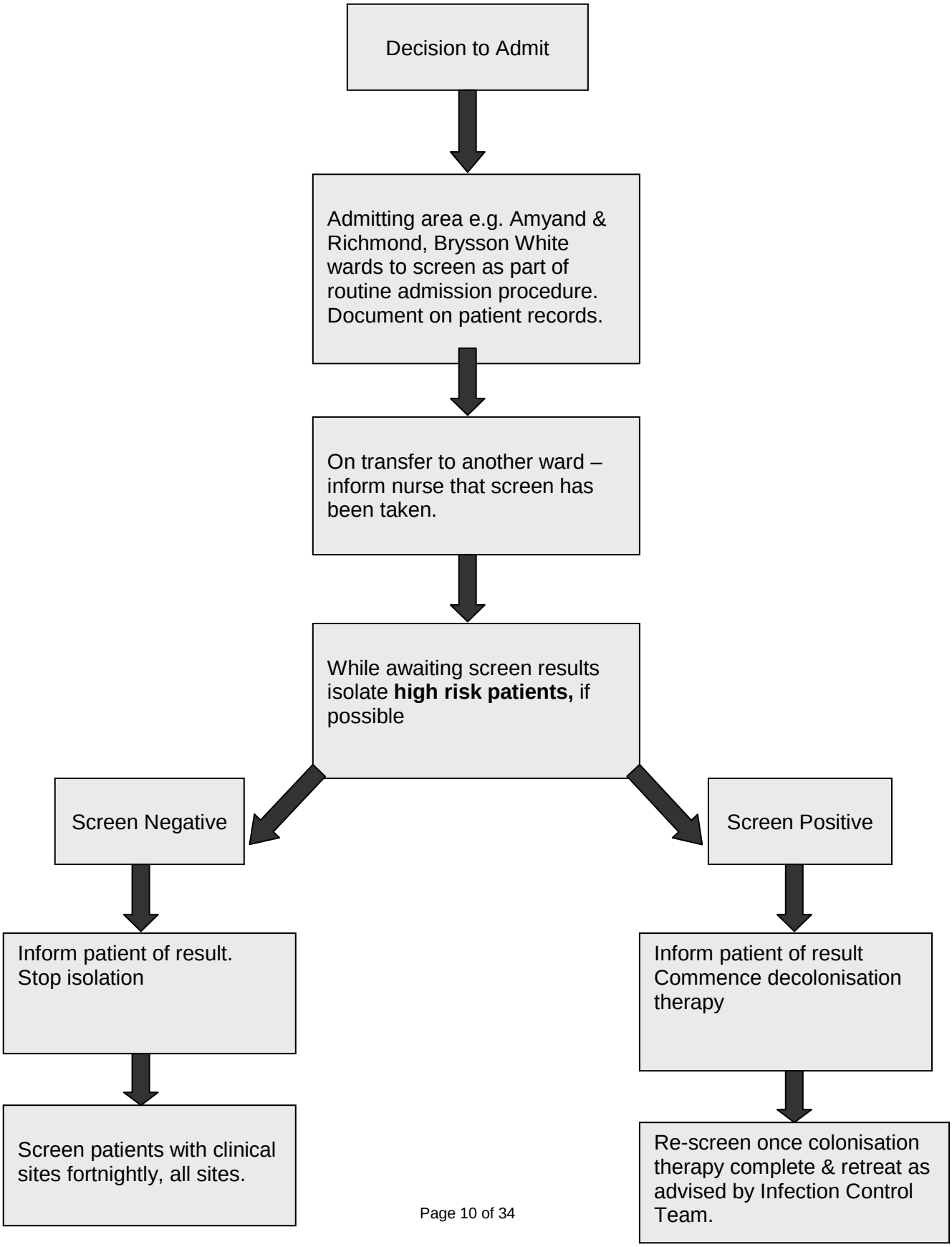
5.5.2 Exemptions

A small number of emergency admissions are currently **exempt from screening**.
These include:

- **Patients under Observation**
  Patients under observation, but not admitted do not need to be screened, e.g. Clinical Decision Unit or on Richmond Rapid Assessment area, Jones Unit (HMP-Wandsworth; if only for observation).
- **Paediatrics**
  Paediatric patients do not need to be screened unless:
  - admitted to HDU/PICU
  - oncology patient
  - transferred from other care providers
  - transferred from abroad
  - previously positive MRSA patients
  - hospital inpatient for >48hrs. in last 12 months.

- **Maternity/obstetrics**
  except for elective caesareans and any high risk cases, i.e. high risk of complications in the mother and/or potential complications in the baby, (e.g. likely to need SCBU, NICU because ofsize or known complications or risk factors.)
- **Termination of Pregnancy patients**
  unless there are risk factors that indicate otherwise.
- **Mental Health Patients**.

5.5.3 Emergency MRSA Screening Pathway



5.6 Screening of Ward Transfers

Screening of ward transfers is no longer necessary as the majority of patients will now be screened prior to or on admission. However, it may be necessary to screen ward transfers in an outbreak situation, as advised.

5.7 Weekly Screening

Adult ICUs must screen patients weekly

All **in-patients with invasive devices, wounds or lesions** must be screened in all sites **every 14 days** for MRSA.

5.8 Outbreak/Cross- Infection Screening

The purpose of outbreak/cross- infection screening is to identify new cases of MRSA cross-infection on the ward. Wards must be screened as soon as possible after cross infection or an outbreak has been identified, rather than waiting for the weekend to screen. Specimens to arrive in the laboratory no later than **Thursday afternoon.**

5.8.1 Wards with Low Risk patients

If **2** new cases of MRSA **acquired in a 14 day period** on the ward**;** screen **all** patients on the ward (not known to have MRSA) in **all sites.**

If **further cases** are identified keep re-screening until there are no further cases i.e. **1 negative screen** from all patients, not already known to have MRSA.

4.8.2 Wards with High Risk patients

If **1** new case of MRSA is **acquired** on the ward; screen **all** patients (not known to have MRSA) on the ward, in **all sites.**

2 negative screens from all patients are required at least 3 days apart before screening may stop.

6. Patient Flagging for MRSA

All patients who have previously had or are newly identified with MRSA have their electronic records on EPR or equivalent, marked with a red cross to alert staff to the cross-infection risk. **It is the responsibility of staff in pre-admission clinic and on admission to the ward to check for MRSA flagging and to act appropriately i.e.**

- screen the patient, if not already carried out
- commence patient on MRSA decolonisation treatment, (if not already given immediately prior to this admission)
- isolate patient (if in-patient)
- inform Infection Control (if in-patient)

7. MRSA Skin Decolonisation

7.1 Decolonisation Treatment

Complete MRSA eradication is not always possible but a decrease of carriage can reduce the risk of transmission in healthcare settings and reduce the risk of MRSA infection. The appropriate regimen should be followed for 5 days. Regimens include the following;

- **In-Patient Prescription for MRSA Skin Decolonisation including Allergy to Chlorhexidine (Hibiscrub) only.** (appendix 1)
- **Allergy and Resistance to Mupirocin In-Patient Prescription for MRSA Skin Decolonisation** (appendix 2)
- **Out-Patient Prescription for MRSA Skin Decolonisation** (appendix 3)
- **MRSA Decolonisation: NNU and Babies under 4 Months Old** (appendix 4)

7.2 Decolonisation of Medical Patients

7.2.1 Medical patients known to have MRSA

All elective and emergency medical admissions with a **previous history or current MRSA carriage:**

Monday – Friday 8a.m. to 4.30p.m.; on admission of patient, ward staff to **check EPR for red cross**, (indicating current or previous MRSA carriage) and if they have a red cross to **contact Infection Control for advice**.

- **Out-of-hours;** on admission of patient, wards to **check EPR for red cross** (indicating current or previous MRSA carriage) and if they have a red cross to **screen patient, commence decolonisation and gloves and aprons precautions** and inform infection control during office hours, as above.

Infection Control Nurses to advise that patient is screened and commenced on decolonisation and gloves and aprons precautions, regardless of the site of the MRSA, **unless;**

- **they have had 3 negative screens in the past 12 months and no admissions to hospital during this period without a screen.**
- they have had **2 decolonisations in the last 6 months,** (if records easily available)

(These two categories of patient should be screened only and kept on precautions until the results of the screen are known.)

7.3 Decolonisation of Surgical Patients

All **elective and emergency surgical** admissions with a **previous history** (regardless of any negative screens)**, or current carriage** of MRSA must be commenced on decolonisation protocol (regardless of any recent decolonisation protocols) preferably **5 days prior** to their operation/procedure.

On admission, any elective or emergency surgical patient who requires decolonisation but has not had it must be commenced on decolonisation as soon as possible prior to their operation only if;

- they currently have MRSA (check for red cross on EPR, or equivalent)
- they have had MRSA in the past (check for red cross on EPR or equivalent), **regardless of any negative screens**
- they are a **High Risk** patient and their pre-operative MRSA screening results are not yet available or they have not been screened for MRSA

Three negative screens are **not** necessary before surgery and operations should not routinely be cancelled because of MRSA.

7.4 Decolonisation of new MRSA cases identified during admission

During their admission, **all newly identified MRSA cases** (surgical and medical) must commence decolonisation regardless of the site of colonisation or antibiotic treatment. This is both to reduce the risk of spread to other patients and to clear MRSA carriage in individuals.

7.5 Patients to be discharged

All patients newly diagnosed with MRSA immediately **prior to discharge** who have not had decolonisation, regardless of the site, should be given this to take and use at home. Post decolonisation screening **not** required.

7.6 Discharged patients

Newly identified patients who are **discharged** before the MRSA result is known, will have a letter sent to their GP by the Infection Control Team, informing him of the result and their responsibilities.

7.7 Repeat Decolonisation

7.7.1 For in-patients with MRSA in **urine, sputum, deep wounds, lines and drains;** after completion of the protocol do **not** re-screen and do **not** repeat protocol**. Isolation precautions to continue.** (If patient is still in hospital and no longer has a catheter, productive cough, deep wounds, lines or drains which were previously positive then; re-screen and if still positive in nose, groin or superficial wounds repeat decolonisation.)

7.7.2 For in-patients with MRSA in **nose, groin or superficial wounds;** re-screen **48 hours** after completion of protocol and **repeat** decolonisation if still positive. Re-screen every 3 days (unless positive) and if 3 negative screens isolation precautions may cease.

A maximum of **2 decolonisations** should be given in a **6 month** period **unless having a surgical procedure**, in which case decolonisation must be commenced five days prior to the procedure.

8. Action to be taken if patient is found to be MRSA positive.

- The nurse caring for the patient must inform the patient or next of kin of the result, provide them with a MRSA information leaflet and give verbal explanation, as required.
- Following a risk assessment by the nurse-in-charge, if necessary in conjunction with Infection Control;

The patient should be moved to a side-room, preferably with en-suite facilities, and nursed in source isolation. A source isolation sign must be placed on the door. The door should remain shut, *provided this does not compromise care,* particularly during procedures that may generate MRSA aerosols e.g. chest physiotherapy or bed-making.

If this is not possible they must be cohorted with other MRSA patients on the ward, preferably in a defined area with designated staff as asgreed with infection control. A “gloves and aprons” sign must be placed over the bed or a sign at the entrance to the bay. Ideally such areas should be capable of physical separation from other ward areas.

- The patient’s vacated bed-space should be deep-cleaned using Chlor-Clean by domestic staff. Equipment must be cleaned by nursing staff, using Chlor-clean for non-electrical equipment. Curtains must be changed. See **Cleaning and Decontamination, section 10.**
- The patient must be screened in all sites if not already carried out.
- The MRSA protocol must be commenced regardless of the site of MRSA carriage. See **MRSA Skin Decolonisation, section 7.**
- Document MRSA positive status in the nursing/medical notes care plan

9. Hand Hygiene and Protective Clothing

Hands must be decontaminated before and after patient contact, and on leaving the isolation room or bay, either by washing with soap and water or with alcohol gel/rub.

Disposable gloves and aprons must be worn by all staff having direct contact with the patient or their immediate physical environment i.e. when entering the side-room, cohort or isolation bay.

Masks are recommended for staff such as when generating staphylococcal aerosols e.g. during sputum suction or chest physiotherapy.

Visitors do not need to wear protective clothing unless they assist with patient care. They must decontaminate hands on entering and leaving the room.

10. Cleaning and Decontamination

10.1 **Equipment** (e.g. sphygmomanometers, stethoscopes, lifting slings) used on patients with MRSA should preferably be single use or designated for use on known MRSA patients. Before items may be used on other patients they should be decontaminated appropriately in accordance with manufacturer's recommendations and as per Infection Control and Decontamination Policies. Use Chlor-clean for non-electrical equipment and detergent wipes where Chlor-clean cannot be used.

10.2 **Daily cleaning**

The isolation room must be cleaned daily with Chlor-clean, using separate equipment, as appropriate, which should be stored in the room.

10.3 **Terminal cleaning**

Following discharge or transfer of a patient a terminal clean must take place before the bed may be used for the next patient. The Deep Clean Team should be contacted by the nursing staff. (If the Deep Clean Team are unavailable then the ward domestic must be informed). At QMH Inform Sodexo helpdesk, Dawes House call housekeeper and Her Majesty's Prison-Wandsworth inform nurse in charge. The following should be undertaken:

- Bed to be stripped and area cleared of all disposable items of equipment by nursing staff prior to domestic staff commencing cleaning. The decontamination of *non-electrical* medical equipment to be carried out by the Deep Clean Team (or ward domestic) as well as bed mattress and frame, locker, table, any other surfaces, including floor. Special attention to be paid to all surfaces where dust may settle. Use Chlor-clean for all surfaces and *non-electrical* equipment. Use detergent wipes (or agreed alternative) when Chlor-clean cannot be used.

- **Curtains** to be changed if the patient has been in the bed–space for >12 hours.
- **Linen** to be disposed of as infected; placed in a white plastic bag inside a red plastic bag.
- **Wall-washing** to hand height.

11. Prophylaxis and Treatment of MRSA Infections

Antibiotic therapy may be appropriate for patients with MRSA infections, suspected infections or for peri-operative prophylaxis see Surgical Prophylaxis Antibiotic policy.

Patients should not be swabbed for MRSA clearance in clinical sites e.g. wounds, sputum, CSU, while receiving antibiotic therapy for MRSA. This includes for example, IV *Teicoplanin*/*Vancomycin, Rifampicin, Fusidin* or *Linezolid.* They must be off therapy for 48 hours before re-screening.

Do not discontinue antibiotic treatment for routine screening. Once treatment is completed wait 48 hours before re-screening the patient.

MRSA skin decolonisation may be commenced while the patient is on antibiotics.

12. Patients Undergoing Surgery or Invasive Procedures

12.1 Decolonisation and Prophylaxis

Prior to any planned surgery, efforts should be made to minimise the risk of infection through topical decolonisation and prophylactic antimicrobial chemotherapy, where appropriate.

12.2 Preparing the patient for theatre

- The theatre must be informed, in advance of surgery, that the patient has MRSA.

- Vancomycin or Teicoplanin should be given prophylactically to cover implant surgery, e.g. joint replacement, in colonised or infected patients. See Surgical Prophylaxis Antibiotic policy.
- The patient does not need to be placed at the end of a theatre list; effective theatre ventilation systems will provide adequate air changes to provide a safe environment within 15 minutes of removal of the MRSA patient from the operating theatre**.**

12.3 Theatre and Recovery

- Extraneous equipment should be removed from the theatre.

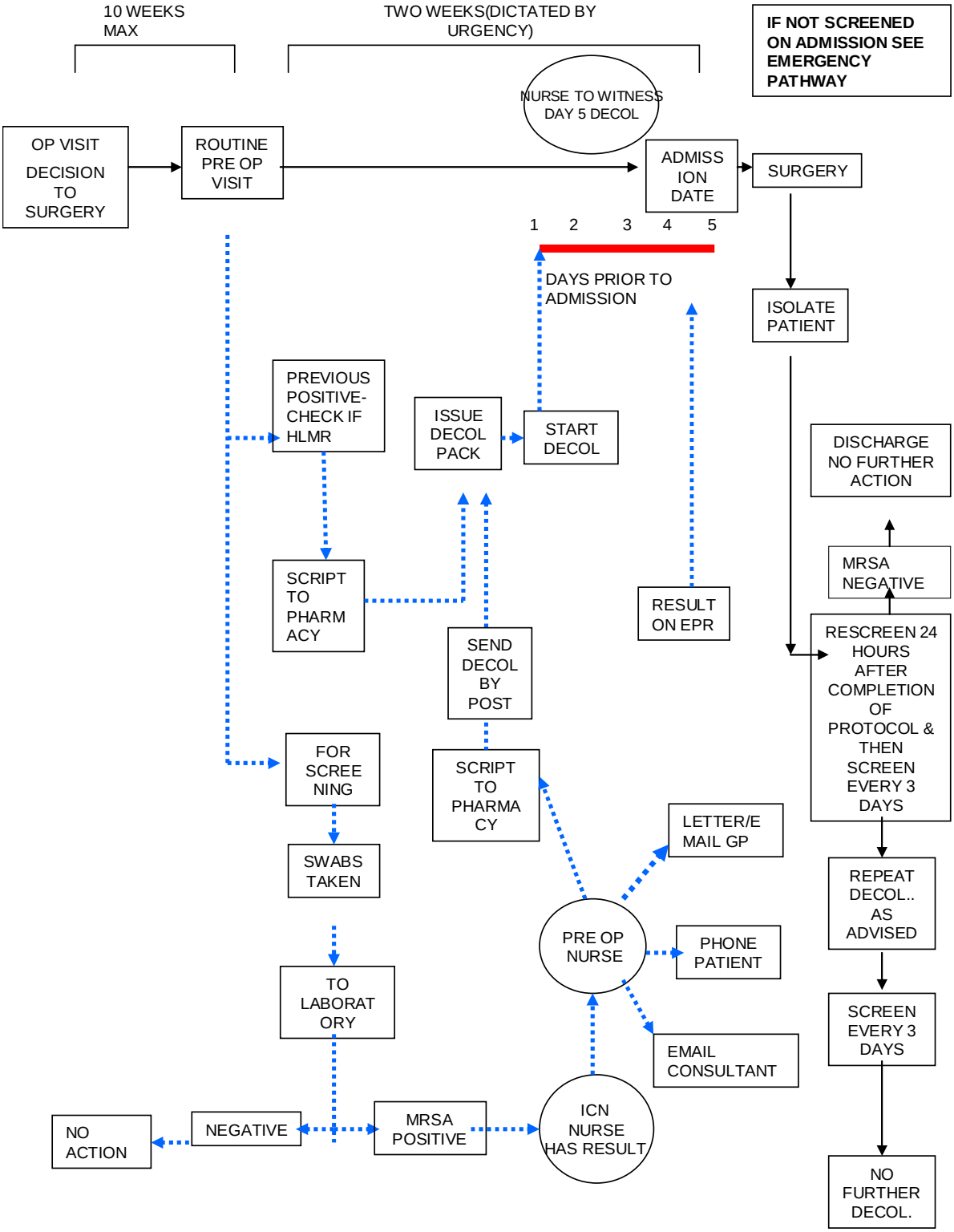
- Theatre personnel should be kept to a minimum.

- Anaesthetic staff and non-scrubbed staff should wear ordinary theatre clothing and a plastic apron.

- The theatre and equipment used for the MRSA case should be cleaned using detergent wipes for electrical equipment and Chlor-clean for non electrical equipment and surfaces.

- Patients must be segregated as best as possible within the recovery area and nursed by staff dedicated to their care employing source isolation precautions.

13. Elective Surgical Pathway for St. George's Hospital



14. Transfer of MRSA Positive Patients

14.1 Transfer within the Trust

This should be kept to a minimum wherever possible, in order to minimise the risk of spread, but should not compromise other aspects of patient care.

Inter-ward transfers will be unavoidable under some circumstances. Patients may be moved either for **clinical** reasons (e.g. a patient requires transfer to a specialist ward or to a higher dependency ward) or for **non-clinical** reasons (e.g. patient requires urgent admission from A&E or an outlying patient needs to be moved so that their bed on a specialist ward is made available).

It is the **responsibility of the Bed Management team** or on-call manager for Community Services, to ensure that this guidance is observed at all times, including nights and weekends so that Ward Nurses are not asked to accept inter-ward transfers that they feel present an infection control risk.

Local ward MRSA cohorting practice should be respected and this should inform where the patient is placed. This may not always allow compliance with single sex bays.

Non-Clinical Inter-Ward Transfer

	Proposed transfer to High Risk Area	**Proposed transfer to a Low Risk Area**
MRSA positive patient.	Patient should **not** be transferred unless either; • a side-room or • an appropriate bed in a bay containing MRSA patients is available.	Either; • admit to side-room or • to an appropriate bed in a bay containing MRSA and non-MRSA patients.
Patient has been screened but awaiting	Patient **not** to be transferred before the screening result is known.	In exceptional circumstances where a transfer is urgently needed the patient will be

result.	In times of unusual pressure where a bed is urgently required, the patient should be moved to an appropriate bed in a bay containing MRSA and non-MRSA patients and nursed with gloves and aprons, until the result is known.	assumed to be MRSA negative and moved to an appropriate bay. No precautions required.
Patient known to be MRSA negative.	If a bed is available in a clean bay then the inter-ward transfer can occur. If **>50% of patients in a bay** are known to be MRSA positive then a negative patient must **not** be transferred to this bay.	
Complete inter-healthcare transfer forms for patients transferred to QMH, Dawes House or HMP-Wandsworth		

- Staff who may be in direct contact with the patient should wear disposable plastic aprons to protect their uniforms whilst in direct contact with the patient. Aprons should be removed when contact with the patient has finished and be disposed of as clinical waste.

- Gloves need only be worn if staff transporting the patient have skin abrasions.

- Staff **must** decontaminate their hands with alcohol hand rub immediately after the transfer of the patient has been completed and before any contact with another patient or piece of equipment.

- The trolley/chair **must be thoroughly cleaned** with detergent wipes or preferably Chlor-clean after use and before being used for another patient.

- All bed linen must be treated as contaminated/infected.

- The Nurse in charge of the ward must inform the receiving ward, in advance of transfer that the patient is MRSA positive.

14.2 Transfer to another Hospital

Inter-hospital transfers should not be prevented or delayed because a patient is MRSA positive, although unnecessary movement should be avoided. The transferring ward is responsible for informing the receiving ward, in advance, that the patient is MRSA positive**.**

15. Visits to Outpatients and Other Departments

Visits by MRSA positive patients to other departments should be kept to a minimum but compromising investigation or treatment should be avoided. If visits are necessary, **prior arrangements should be made with the staff of the receiving department, so that infection control measures for that department can be implemented.**

15.1 Where possible:

- The patient should be seen at the **end** of the list.
- The patient should spend the **minimum** amount of time in the department, being sent for when the department is ready and not left in the waiting area with other patients.
- Staff having **direct contact** with the patient must wear a disposable apron and gloves and ensure that they decontaminate their hands following contact with the patient and/or contaminated equipment.
- **Equipment** and the **number of staff** attending the patient should be kept to a minimum.
- **Surfaces and equipment** with which the patient has had direct contact should be thoroughly cleaned using Chlor-clean and electrical equipment cleaned with detergent wipes or decontaminated according to manufacturer's instructions.
- **Linen** should be treated as infected/contaminated.
- Remind patient to **decontaminate their hands** on arrival and on leaving the department when appropriate e.g. gym, OT department

15.2 Hydrotherapy Pool

Patients with MRSA may use the hydrotherapy pool provided they;

- have no open wounds.
- shower before entry.
- are on their own in the pool with the physiotherapist.

Staff must **wait 20 minutes** after the MRSA patient has vacated the pool before it can be used by other patients (MRSA positive patients do not have to use the pool at the end of the day).

16. Ambulance Transportation

The risk of cross-infection from a MRSA colonised or infected patient to other patients in an ambulance is minimal. Good infection control practices and routine cleaning should be sufficient to prevent cross-infection.

- The ambulance service should be **notified in advance by the ward staff** of the patient's MRSA status.

- **Most MRSA carriers** may be transported in the same ambulance as others **without** special precautions other than changing the bedding of the carrier. Hands should be decontaminated with alcohol gel/rub but aprons and gloves should only be worn for direct care.

- If transporting a potentially **heavy disperser**, i.e. large skin lesions, the patient should be transported alone and the handling staff should wear a disposable apron and gloves, **decontaminate their hands with alcohol hand rub** following removal of apron/gloves and wipe down surfaces in contact with the patient with detergent wipes.

- High risk patients (those susceptible to infection, e.g. neutropenic) should **not** be transported in the same ambulance as a known MRSA patient.

- Patients with MRSA **can** be discharged home via a hospital car. **No** special precautions are required, and there is no evidence that ambulance staff/hospital drivers or their families are put at risk by transporting patients with MRSA.

- No additional cleaning of the ambulance, or hospital car, is required after transporting a MRSA positive patient. Further information is available in **"National Guidance and Procedures for Infection Prevention and Control" Ambulance Association (June 2004).**

17. Discharge of Patients

Patients with MRSA should be **discharged promptly** from hospital when their clinical condition allows.

- If the ward is contacted regarding a positive MRSA result on a patient **not previously known** to be MRSA positive, and the patient has already been discharged, the patient should be informed of their MRSA positive status and commenced on decolonisation by their GP, who will be sent a letter by the Infection Control Team regarding the result.

- Patients colonised with MRSA should complete the 5 day course of decolonisation protocol at home if it has already been commenced prior to discharge. If they are about to be discharged when the result becomes known they should be given the protocol to take and use at home. The patient's **General Practitioner** must be informed of the patient's MRSA status on the discharge letter, and arrangements made for re-screening in the Community **only** if clinically indicated.

- It is **essential** that patients, their relatives and carers should be fully briefed on MRSA, and informed that there is **no risk** of infection to healthy relatives and contacts outside the hospital, and that normal social interaction should not be compromised. Where contact will be with relatives or friends who may be hospital workers with patient contact, or with individuals who may be receiving hospital treatment, individual cases may be discussed with the Infection Control Team and Occupational Health Department.

- Patients should be advised that if they are re-admitted to hospital at any time, they should advise admitting staff that they have **previously been identified** as a carrier of MRSA in order to ensure that they are appropriately managed.

- There is **no** indication for **routine** screening before hospital discharge to the community.

- The **Nurse in Charge of the Ward** should inform Matrons of Nursing or Residential Homes of the patient's MRSA status.

18. Deceased Patients

Deceased bodies require no additional precautions other than **standard Infection Control Precuations.** There is negligible risk to mortuary staff or undertakers provided that these precautions are employed.

19. Staff

Staff Screening

19.1 **Screening of staff is not carried out, or recommended, routinely.** However, if transmission of MRSA occurs on a ward despite active control measures, if the epidemiological aspects of an outbreak are unusual, or if they suggest persistent MRSA carriage by staff, screening **may** be requested by the Infection Control Team.

- Pre-employment, if there is a **history of MRSA carriage** re-swabbing should be considered to confirm current MRSA status. Decolonisation should be started, if appropriate, if a positive MRSA result is obtained, before employment begins.

- If new patients are identified with MRSA, staff on the ward (including Bank and Agency staff) should be asked about skin lesions, eczema or psoriasis. **Staff with such lesions should be referred to the Occupational Health department for MRSA screening and review.**

- If it is suspected that a patient has acquired MRSA in theatre, theatre staff may require screening.

- In the event of staff screening being required, care must taken to distinguish between **transient carriage**, i.e. nasal carriage which is lost within a day or so of removal from contact with MRSA positive patients and carries little risk of onward transmission, and **prolonged carriage**, especially with skin lesions. **Therefore, any**

staff screening must be taken at the start of a shift before any patient contact and not as staff leave at the end of a shift.

- Nurses, doctors, physiotherapists and other allied-health professionals and non-clinical support staff (e.g. porters), **may** be included in the staff screening exercise.

- Screening sites for staff should include the nose and broken skin in the first instance. (Consider screening throat, hairline and groin for staff found positive on initial screens.)

- **The screening, investigation and treatment of healthcare personnel is the responsibility of the Occupational Health Department with support from the Infection Control Team. Staff confidentiality will be maintained at all times.**

19.2 Treatment of Staff Carriers

The Occupational Health Department has primary responsibility for the treatment of staff.

- Staff **nasal carriers** should be treated with MRSA decolonisation treatment and may continue working while undergoing decolonisation treatment.

- Staff with MRSA in **lesions other than on hands** may continue working, even in high risk areas, provided the lesion is covered and they maintain good hand hygiene. Staff should be commenced on skin decolonisation including lesions, if superficial, but do no require screening in other sites prior to treatment.

- Staff members with colonised or infected **hand lesions** should be **deployed to a non-clinical area** or excluded from work while they are receiving decolonisation treatment. Where hands are colonised there is greater risk of transmission than with nasal colonisation.

- Staff must be screened every 3 days and **three negative screens** obtained over three consecutive weeks before they can be considered to be MRSA negative.

- Failure to eradicate MRSA after 2 courses of treatment should be reviewed by the Infection Control Doctor. Persistent colonisation may require antibiotic therapy.

- **Exclusion of staff for infection control purposes is not deemed sick leave.**

Treatment of staff members infected during the course of their work at St. George's to be funded by the Trust. Every effort will be made to effect clearance of the organism but where this is impossible or significantly delayed the Trust may declare a staff member unsuitable for employment as they are unable to carry out the duties of the post due to the risk of cross-infection.

20. References

Department of Health (July 2008) MRSA Screening – Operational Guidance. Gateway reference number 10324

Department of Health (2007) Screening for meticillin-resistant *Staphylococcus aureus* (MRSA) colonisation: A strategy for NHS Trusts: a summary of best practice. www.clean-safe-care.nhs.uk

Department of Health (December 2008) MRSA Screening – Operational Guidance 2. Gateway reference number 11123

Department of Health (March 2010) MRSA Screening – Operational Guidance 3, Gateway reference number 13482

Department of Health (2009) The Health and Social Care Act (2008). A Code of Practice for the NHS on the prevention and control of healthcare associated infections and related guidance.

Coia et al (2006) Guidelines for the control and prevention of meticillin resistant *Staphylococcus aureus* (MRSA) in healthcare facilities by the Joint BSAC/HIS/ICNA Working Party on MRSA. Journal of Hospital Infection Volume 63;Supplement 1

Department of Health (2007) Isolating Patients with healthcare-associated infection. A summary of best practice. www.clean-safe-care.nhs.uk in healthcare facilities.

Appendix 1.

In-Patient Prescription for MRSA Skin Decolonisation including Allergy to Chlorhexidine (Hibiscrub) only

Please attach to patient's drug chart to ensure administration (if dose is not given please record in signature box)

Patient Surname:	**Hospital Number:**	**Ward:**	**Pharmacist Screen:**
Patient Forename:	**Allergies:**	**Consultant:**	

Tick required regimen	**Drug Name**	**Time**	**Nurse's signature & date**					**Dr's sig. & date**
			Day 1 Date	**Day 2 Date**	**Day 3 Date**	**Day 4 Date**	**Day 5 Date**	
Standard MRSA Kit	**Mupirocin 2% nasal ointment (Bactroban®).** Apply inside each nostril & massage outside of nose until ointment can be tasted at back of throat.	**08:00**						
		14:00						
		22:00						
	Hibiscrub® (Chlorhexidine Gluconate 4%) Use for bedbath or shower.	**08:00**						
	Hibiscrub® (Chlorhexidine Gluconate 4%) Use as shampoo.	**08:00**						
	Chlorhexidine Acetate 1% Powder. Apply to armpits, skin folds and groin	**08:00**						
If allergic to Cholrhexidine (Hibiscrub)	**Mupirocin 2% nasal ointment (Bactroban®).** Apply inside each nostril & massage outside of nose until ointment can be tasted at back of throat.	**08:00**						
		14:00						
		22:00						
	Octenisan® (Octenidine) wash lotion. Use for bedbath or shower. – 3 minutes contact time is required	**08:00**						
	Octenisan® (Octenidine) wash lotion. Use as shampoo. – 3 minutes contact time is required	**08:00**						
Superficial wounds without indwelling devices	**Mupirocin 2% ointment (Bactroban®)** Apply to small superficial wounds that are known to be MRSA positive	**08:00**						
Indwelling devices (e.g. IV lines, PEGs)	**Mupirocin 2% <u>nasal</u> ointment (Bactroban®)** Apply a small amount to sites with indwelling devices that are known to be MRSA positive	**08:00**						

All MRSA positive patients, except babies < 4 months old and patients who have an allergy or resistance to all of the treatment options, must be commenced on this prescription, after agreement by the Infection Control Team.

- **Mupirocin wound ointment** contains polyethylene glycol so must **not** be:
    - used on or near plastic material e.g. I.V. lines, NG tubes, 02 nasal cannulae, PEG tubes or drains.
    - used on deep extensive wounds longer than 10cm long and 100cm^2**.**
- **Mupirocin nasal ointment** dose **not** contain poly-ethylene-glycol so does not damage the integrity of plastic material and can be used on sites with indwelling devices
- **Hibiscrub®**: For bedbath; apply neat Hibiscrub to dampened cloth. Apply neat to skin and rinse thoroughly if showering. Hair conditioner and body moisturiser must **not** be used until 4 hours after application of Hibiscrub.
- **Octenisan®**: For washing; apply undiluted to a damp facecloth, rub onto the areas of the body to be cleansed, **leave for 3 minutes** contact time and wash off. For showering or hair washing, use in the same way as normal preparations.
- Ensure bed linen, clothing and towels are changed daily.
- After 5 days dispose of all items dispensed for the protocol (tubes of ointment etc.) to prevent their continued use.

For patients with MRSA in urine, sputum, deep wounds, around lines and drains: after completion of the protocol do **not** re-screen and do **not** repeat the protocol.

For patients with MRSA in nose, groin or superficial wounds:

- 48 hours after completing the protocol re-screen all sites as listed but continue with isolation precautions. Please ensure a non-touch technique when taking swabs to reduce risk of contamination.
    - Nose (one swab moistened with saline is sufficient).
    - Groin (one swab moistened with saline is sufficient).
    - CSU if urinary catheter in situ.
    - Sputum, if productive.
    - All wounds including I.V. line sites.
- If post-treatment samples are **negative** continue isolation precautions and re-screen all sites. In total, 3 screens at least 3 days apart are required before a patient can be considered MRSA negative. Consult with the Infection Control Team before relaxing precautions.
- If post treatment samples are **positive** give a second protocol, but no more than 2 in a 6 month period.

Appendix 2. **ALLERGY AND RESISTANCE TO MUPIROCIN In-Patient Prescription for MRSA Skin Decolonisation**
Please attach to patient's drug chart to ensure administration (if dose is not given please record in signature box)

Patient Surname:		**Hospital Number:**					**Ward:**					**Pharmacist Screen:**
Patient Forename:		**Allergies:**					**Consultant:**					
Tick required regimen	**Drug Name**	**Time**	**Nurse's signature & date**									**Dr's sig. & date**
			Day 1 Date	**Day 2 Date**	**Day 3 Date**	**Day 4 Date**	**Day 5 Date**	**Day 6 Date**	**Day 7 Date**	**Day 8 Date**	**Day 9 Date**	**Day 10 Date**	
If allergic/ resistant to Mupirocin	**Naseptin® (chlorhexidine 0.1%, neomycin sulphate 0.5%) cream.** Apply inside each nostril & massage outside of nose until ointment can be tasted at back of throat. **MUST BE GIVEN FOR 10 DAYS (continue Rx on drug chart)**	**08:00**											
		12:00											
		18:00											
		22:00											
	Hibiscrub® (Chlorhexidine Gluconate 4%) Use for bedbath or shower.	**08:00**											
	Hibiscrub® (Chlorhexidine Gluconate 4%) Use as shampoo.	**08:00**											
	Chlorhexidine Acetate 1% Powder. Apply to armpits, skin folds and groin	**08:00**											
			Day 1 Date	**Day 2 Date**	**Day 3 Date**	**Day 4 Date**	**Day 5 Date**	**Day 6 Date**	**Day 7 Date**	**Day 8 Date**	**Day 9 Date**	**Day 10 Date**	
If allergic/ resistant to Mupirocin & Hibiscrub	**Naseptin® (chlorhexidine 0.1%, neomycin sulphate 0.5%) cream.** Apply inside each nostril & massage outside of nose until ointment can be tasted at back of throat. **MUST BE GIVEN FOR 10 DAYS (continue Rx on drug chart)**	**08:00**											
		12:00											
		18:00											
		22:00											
	Octenisan (Octenidine) wash lotion. Use for bedbath or shower – 3 minutes contact time is required	**08:00**											
	Octenisan (Octenidine) wash lotion. Use as shampoo – 3 minutes contact time is required	**08:00**											

Appendix 3.

OUT-PATIENT PRESCRIPTION FOR MRSA SKIN DECOLONISATION
Please take this to the Hospital Pharmacy

Patient details

Surname…….. Patient's Address……

First Name…….. ……

Hospital no…… D.O.B……. ……

Consultant…… Clinic/Department…… Postcode……

POST ☐

N.B. EXEMPT FROM PRESCRIPTION CHARGES

Tick appropriate box	Drug Name (Approved)	Dose & Frequency	Number of Days	PHARMACY USE ONLY	
				Quantity Supplied	Cost centre
Standard MRSA Kit	Mupirocin 2% Nasal Ointment (Bactroban® Nasal Ointment) 3g	Apply TDS to both nostrils	5 days	1 x standard kit	Dispensed by
	Chlorhexidine Gluconate 4% (Hibiscrub®/Hydrex®) Surgical Scrub 500ml	Wash daily and use as a shampoo on days 1, 3 & 5			
	Chlorhexidine Acetate 1% Dusting Powder (CX Powder®) 15g	Apply daily to armpits, skin folds and groins			
If allergic/ resistant to Mupirocin	Chlorhexidine Hydrochloride 0.1%, Neomycin Sulphate 0.5% Cream (Naseptin® Cream) 15g	Apply QDS to both nostrils	10 days	1 x 15g	Checked by
	Chlorhexidine Gluconate 4% (Hibiscrub®/Hydrex®) Surgical Scrub 500ml	Wash daily and use as a shampoo on days 1, 3 & 5	10 days	1 x 500ml	
	Chlorhexidine Acetate 1% Dusting Powder (CX Powder®) 15g	Apply daily to armpits, skin folds and groins		1 x 15g	
If allergic to Hibiscrub	Mupirocin 2% Nasal Ointment (Bactroban® Nasal Ointment) 3g	Apply TDS to both nostrils	5 days	1 x 3g	Counselled by
	Octenidine Hydrochloride Antimicrobial wash lotion (Octenisan®) 450ml – 3 minutes contact time is required	Wash daily and use as a shampoo on days 1, 3 & 5		1 x 450ml	
If allergic/ resistant to Mupirocin & Hibiscrub	Chlorhexidine Hydrochloride 0.1%, Neomycin Sulphate 0.5% Cream (Naseptin® cream) 15g	Apply QDS to both nostrils	10 days	1 x 15g	
	Octenidine Hydrochloride Antimicrobial wash lotion (Octenisan®) 450ml – 3 minutes contact time is required	Wash daily and use as a shampoo on days 1, 3 & 5	10 days	1 x 450ml	
If superficial wounds present and MRSA is mupirocin sensitive	Mupirocin 2% Ointment (Bactroban® Ointment) 15g	Apply daily to superficial wounds	5 days	1 x 15g	Date

Signed…… Bleep…… Extension no…… Name (in Capitals) …… Date……

Appendix 4

MRSA Decolonisation: NNU and Babies Under 4-Months Old.

These guidelines are appropriate for the treatment of babies with surface MRSA in the Neonatal Unit. However, discussion with the MDT prior to use in very preterm infants is required. The MRSA Decolonisation must be prescribed in all cases. The procedure has the potential to cause thermal instability, therefore risks and benefits must be considered prior to use.

Octenidine hydrochloride (OCT) is a broad -spectrum antimicrobial agent which is an active biocide at low concentrations. The compound is bactericidal as well as candicidal and is effective against resident skin microflora. The in vivo activity of OCT is rapid and cumulative over successive applications. No method is 100% effective and some babies may require more than one decolonisation.

Equipment required:

- Octenidine (warmed) Diluted 50:50 with water to be used as a skin wash
- Mupirocin nasal ointment 2% in soft white paraffin
- Cotton buds to apply mupirocin ointment
- Silver dish
- Gauze swabs or cotton wool balls
- Clean hat
- Warm clean towel
- Warm clean bedding

1 Action	2 Rationale
Discuss and agree procedure with medical staff to ensure it is safe to decolonise.	Patient safety
Check prescription is signed in each box.	Patient safety
Increase baby's temperature to 37.2 prior to procedure Maintain humidity at level appropriate to	To minimize thermal instability

the needs of the baby.	
Check baby's temperature at beginning of treatment.	To establish a baseline temperature
Prewarm clean bedding.	To promote thermal stability
An assistant is very useful.	To expedite the procedure
Ensure octenidine solution is warm.	To prevent hypothermia
Remove all leads except pulse oximetry lead.	For ease of treatment
Place the infant on a clean warmed towel and remove bedding.	To maintain temperature
Wipe the infants skin with gauze/cotton wool soaked in warmed octenidine solution.	To ensure all areas are cleansed
Leave the octenidine in contact with the infant's skin for **three minutes** and remove with warm clean water.	To maximize the effectiveness
Dry the baby's skin with a warm towel.	To prevent thermal instability
If the baby is nursed in a cot, ensure the room is warm and additional heating is close by.	To ensure thermal stability
On day 1, 3, 5 wash the whole body, neck and face. **(Day 1,4, 7, 10 for those on Naseptin cream for nose)**	To ensure decolonisation of axillae, groins and skin
On day 2 and 4 wash the whole body, neck, face and hair. **(Day 2, 3, 5, 7, 9 for those on Naseptin cream for nose)**	To ensure decolonisation of axillae, groins, hairline and skin

After washing apply a very thin layer of mupirocin to the nares, this is to be administered a total of three-times daily for five days. **(Naseptin four-times daily for 10-days if resistant to Mupirocin)** If the baby is receiving CPAP, change the prongs after each application of mupirocin.	To ensure decolonisation of nose To reduce re-infection.
Check the baby's temperature after treatment. Document procedure in the notes	To ensure appropriate care
Clean all probes prior to re-attachment Use clean ECG leads after each treatment	To minimize re-infection
After the final wash change the CPAP circuit and the incubator / cot.	To minimize re-infection