King's College Hospital NHS
NHS Foundation Trust

Meticillin Resistant Staphylococcus Aureus (MRSA) Protocol (Including GRSA / GISA)

Document Detail	
Document name	Infection Prevention and Control Policy Appendix 9– Meticillin Resistant Staphylococcus Aureus (MRSA) Protocol
Document location	Link on Infection Control KWIKI page
Version	1.0
Effective from	Immediate
Review date	September 2013
Owner	Deputy Director Infection Prevention and Control
Prepared by	Shirley Allen and Dr Amanda Fife Infection Prevention and Control Team
Approved by, date	Infection Prevention and Control Committee
Superseded documents	
Target Audience	All trust staff; including external contractors

Change History		
26 April 2012	Change review date to two years following motion presented by Amanda Fife at HCAI Ops 13 April 2012	Sobha Ramsahye

Content

Meticillin Resistant Staphylococcus aureus

1. Introduction

Staphylococcus aureus is a bacterium that can reside on the skin and is found in the nose of about one-third of healthy individuals. Meticillin resistant strains of *Staphylococcus aureus* are known as MRSA. Although MRSA is much less common than the normal meticillin sensitive strains of *S aureus* (MSSA), they are more likely to be found in healthcare settings.MRSA is resistant to all beta lactam antibiotics (penicillins, cephalosporins) and is frequently resistant to other antibiotic classes.

Over the last 25 years MRSA has become endemic in many acute hospitals in the UK. When MRSA is isolated on the skin or nose this does not necessarily mean that the person will develop an infection. Such patients, who carry the organism but are not clinically infected, are termed colonised. It is important to understand the difference between colonisation and infection with MRSA.

There is no evidence that MRSA is more likely to cause an infection than MSSA. Infections are treatable, but the antibiotic options are limited. The glycopeptide vancomycin remains the mainstay of treatment of MRSA infection, although newer agents such as linezolid have become available. These antibiotics have drawbacks such as cost and side effects when compared with treatments for MSSA. For these reasons every effort should be made to prevent the spread of MRSA. Furthermore, strains of MRSA are emerging which show resistance to vancomycin and teicoplanin (Glycopeptide Resistant, GRSA or Glycopeptide Intermediate, GISA), but this presently remains at low levels internationally.

MRSA can spread via hands of healthcare workers, equipment and the environment. Some types of MRSA are termed “epidemic” (EMRSA). These are particularly prone to cause outbreaks in hospitals.

Since 2005, it has been mandatory for the Trust to report all MRSA blood stream infections to the Department of Health on a monthly basis. In all cases of MRSA bacteraemia Infection prevention and control team IPCT will request a Root Cause Analysis (RCA)to be completed for discussion at an RCA meeting. It is the responsibility of the division to set up the meeting and collate the information.

Since April 2010 King’s has complied with Department of Health protocol to screen all elective and emergency admissions for MRSA

2. Aim of this protocol

The aims of this protocol are to ensure that King's College Hospital NHS Foundation Trust:

- continues to reduce the risk to patients of contracting MRSA or GRSA by providing information to all staff on the detection, management and treatment of these organisms
- complies with current national guidance from Department of Health Guidance 2007, 2008.
- Describe the infection prevention and control best practices that should be followed when caring for a MRSA patient.

3. Scope of the protocol

This protocol applies to all staff employed by King's College Hospital NHS Foundation Trust and external contractors, in particular those responsible for delivery of the cleaning services.

4. Definitions

Colonisation means that the MRSA is carried in the nose, on the skin andpossibly in wounds but is causing no harm and producing no symptoms. Colonising MSSA and MRSA are not normally a risk to healthy people

Infection with MRSA usually occurs when the organism enters the body through a break in the skin. This can lead to infection of wounds (and surgical sites), intravenous catheters and the bloodstream. Some community strains, which produce the toxin Panton Valentine Leukocidin (PVL), are able to cause infections in previously healthy individuals. These may occasionally be seen in hospitalised patients (please refer to the PVL *Staphylococcus aureus* protocol).

Screening is the microbiological testing of samples taken from the potential carriage sites of a patient on or before admission. This enables patients who are colonised with MRSA to be identified.

Cohorting: grouping together of patients carrying the same organism in a separate area of a hospital ward Source Isolation involves placing individual patients in side rooms to stop the spread of infection.

5. Screening of admissions to King's

Since April 2010, **all** admissions**,** elective and emergency, with some exceptions, must be screened for MRSA before admission.

Exceptions are (based on DH Operational Guidance 2008):

- Dental day cases
- Ophthalmology day cases
- Minor operations including dermatology day cases
- Obstetric and gynaecology day cases
- Routine paediatric cases only

- All ‘high risk’ admissions to PICU, HDU, NICU, Rays of Sunshine, Haemato oncology and Neurosurgical services require screening

For elective admissions, **sufficient time** must be allowed between screening and admission, to enable completion of MRSA clearance and re-screening (3 weeks allows time for repeat screening and re-treatment, if required). If insufficient time is available, patients must be placed on a decolonisation regimen several days before admission. The results of MRSA screening also need to be taken into account when selecting the most appropriate agents for **antibiotic prophylaxis** as Beta-lactam antibiotics are ineffective against MRSA (advice can be obtained from the duty Medical Microbiologist ext 4360 / 4358). MRSA clearance should never be prioritised over a patient’s clinical need for treatment. Appropriate contact precautions should be taken and, where indicated, antibiotic prophylaxis or treatment given.

Peri-operative prophylaxis may require modification to include agents with activity against MRSA (Refer to trust antibiotic local policy)

Pre operative screening. This should be done in pre assessment clinic. It is the responsibility of the pre assessment nurse taking the MRSA screen to follow up the result, and liase with the patient and the General Practitioner if the MRSA result is positive. IPCT must be informed of the dates of topical decolonisation by the pre assessment nurse.

6. Screening of emergency admissions

As of April 2010, all emergency admissions should be screened for MRSA Patients with specific risk factors for MRSA (see 6.2) should be nursed with contact precautions until the results of admission screening are known.

Previously positive MRSA patients must be nursed with barrier precautions unless their admission screen is negative AND there is previous documentary evidence of MRSA clearance (3 negative screens, collected at least 48 hours apart after discontinuation of topical antistaphylococcal agents)

Risk factors for MRSA:

- Previously MRSA positive (check on EPR or confirm with patient)
- Transfer from a nursing home or another hospital or abroad
- Previous hospital admission within the past 3 months.
- Regular healthcare facility admissions
- Regular attendance at an outpatient clinic, e.g. renal dialysis or diabetic foot clinic
- Presence of an indwelling device, e.g. Hickman line, urinary catheter, PEG.
- Presence of chronic lesions, e.g. leg ulcers or pressure sores.
- Intravenous drug user.

7. MRSA screening in high risk areas

- Admission and weekly screens must be done on all patients in ITUs and HDUs,
- including the Newborn Unit (Fred Still), PICU, Kinnier Wilson HDU and Fisk and Cheere ward.

- The Newborn Unit has a local policy which is available on Kingsweb.Patients on dialysis must have repeat MRSA screens every three months.
- Dialysis outpatients patients with lines are screened monthly for MRSA.
- All other inpatients to be screened for MRSA on admission.
- Patients NOT in the defined high risk areas above but who have a prolonged admission must be rescreened at 14-day intervals.

8. How to take screening swabs

Sample collection is the responsibility of the staff member admitting the patient or running the pre-admission clinic.

Samples must be taken from the following sites:

- Nose
- Throat
- Groin or perineum
- Any wounds or open lesions
- Any line sites

Before taking the swabs it is very important to moisten the swab with a few drops of sterile water or saline prior to taking the swabs.
Note: when swabs are sent as an “MRSA screen”, the laboratory places the swabs together in one bottle of broth. This means that it will not be possible to determine precisely which site was positive.
Therefore, if a patient has a lesion or wound which looks clinically infected, a separate swab for culture and sensitivity, in addition to screening the site for MRSA, must be sent to the laboratory.
EPR requesting (see below)
It is important to request the correct screen in order to allow the Trust to collate accurate statistics

MRSA Admission Screen: use this order for all emergency admissions and elective admissions who have not already been screened before admission at preadmission clinics

MRSA Pre-admission Screen: use this order for all elective patients attending pre admission clinics

MRSA Screen: use this order for all other MRSA inpatient screening (weekly or fortnightly, as 7, above)

9. Care of MRSA infected or colonized patients

When MRSA is isolated in an in-patient for the first time, the ward will be contacted by either a microbiology doctor or an infection prevention and control nurse (IPCN). Over the weekend period the microbiologist on call will inform and advise the

clinical site manager of the new MRSA positive patients. It is responsibility of the clinical site manager to inform the nurse in charge of the appropriate wards of the new MRSA positive results, and the isolation plans. The patient's Electronic Patient Record (EPR) will be labelled "MRSA positve" on the top right hand corner of the screen.
It is the ward staff's responsibility to inform the patient and provide them with a information leaflet. The IPCN can be contacted if further detailed advice is required.It is the responsibility of the nurse in charge and the ward doctor to inform other members of the multidisciplinary team involved in the care of the patient, e.g. nurses, doctors, therapists and students.

It is also the responsibility of the nurse in charge to commence the MRSA care plan.
http://hww-kingsweb/x-files/Infection_Control/MRSA%20Care%20Plan%20forms%20May10/01%20MRSA%20Ward%20Action%20for%20new%20case%20May10.pdf
http://hww-kingsweb/x-files/Infection_Control/MRSA%20Care%20Plan%20forms%20May10/02%20MRSA%20Care%20Plan%20May10.pdf

The patient must be isolated in a single side room (see isolation precaution protocol) or cohorted with other MRSA positive patients on the ward on the same day as the result. The decision to cohort must be made in conjunction with IPCT.
http://hww-kingsweb/x-files/Infection_Control/Policies%20and%20Protocols/Infection%20Control%20Prioritisation%20of%20Side%20Rooms%20(extract%20from%20Isolation%20Precautions%20Protocol).doc

Side room priority must be given to patients more likely to disseminate MRSA e.g. patients with wounds, psoriasis, open skin lesions, indwelling devices in situ or with MRSA in sputum. A contact isolation notice must be displayed on the door of the side room /bay or above the patients' bed.

General precautions
Hands must be washed or decontaminated before and after **every** patient contact, (inconjunction with the 5 moments for hand hygiene), including **between** patients in MRSA cohorts. Personal protective equipment, (PPE) clothing must be worn by all staff for each patient episode as per isolation precautions protocol. Long hair must be tied back. Sleeves must be rolled up. Wrist watches and jewellery (except one plain band ring) removed as per uniform policy.
http://hww-kingsweb/x-files/Trust%20Wide%20Policies/Uniform%20and%20Dress%20Code%20R2010.doc

Only essential staff should enter MRSA patients' rooms. Doors of isolation rooms must be kept closed at all times.

After contact with patients or patient environment, gloves and apron must be removed whilst in the room, disposed of in the orange clinical waste bin and hands decontaminated before leaving the room.

In a cohort area, gloves and aprons must be changed and hand hygiene performed between each patient.
Gloves which have been worn in an isolation area must be discarded and hands decontaminated before common equipment such as computer keyboards or telephones are touched.

Medical rounds - Medical rounds should attend non-isolated patients on each ward before isolated patients. Wherever possible, Medical teaching rounds should not include MRSA patients – Medical students should not enter MRSA patients' isolation rooms. Any student visiting an MRSA patient must take the precautions above, as instructed by ward staff.

Therapists - Physiotherapists and **Occupational therapists** should treat non-isolated patients before isolated patients on each ward, following strict observance of isolation measures and a fresh uniform each shift.

Phlebotomy and cannulation - Phlebotomists and **Cannulation** staff should visit non-isolated patients before isolated patients on each ward. Equipment must not be shared between patients and wards.

Medirest and non-clinical staff - Domestic staff, Portering staff, Works Department staff and other visitors should be informed of necessary isolation measures by ward staff **before** entering an isolation room, or making direct contact with an MRSA patient. Advice on isolation measures does not compromise a patient's confidentiality.

Visitors - It is not necessary for visitors to wear PPE but they should be advised to decontaminate their hands before entering and leaving the room. However if the visitors are involved in personal care they will need to be instructed how and when to wear PPE, and its appropriate use.

Equipment, environment and cleaning - As far as possible, equipment must be dedicated to the MRSA positive patient or patients in the bay. Use disposable equipment where possible. If equipment is shared between patients it must be decontaminated after each patient use with Tristel / or Chlorclean.
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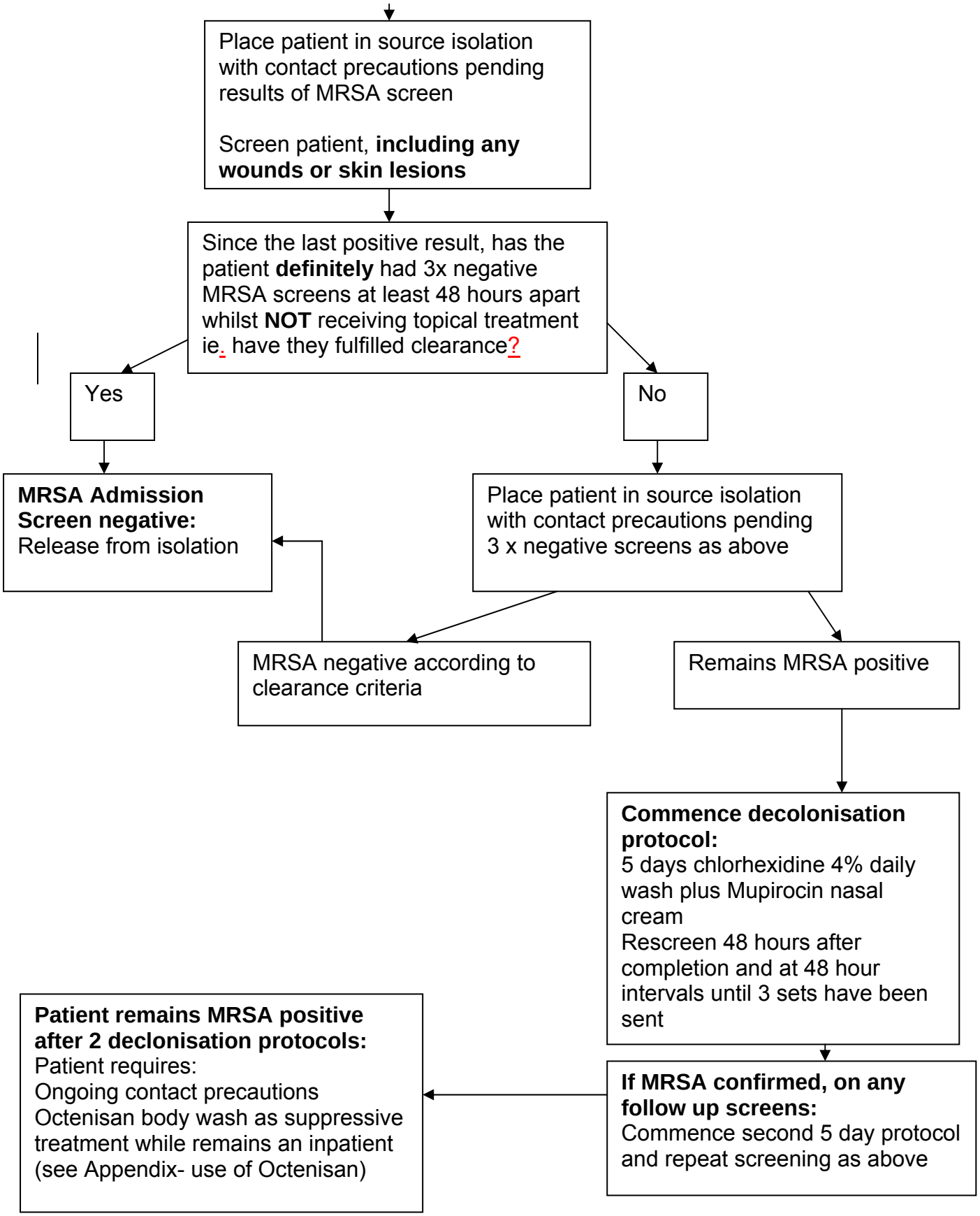
- The patient must be given clean sheets, towels and pyjamas at least daily.
- Used linen/laundry must be treated as contaminated and placed in a red bag.
- For advice on movement of patients with MRSA around the hospital please see the specific section.
- Daily cleaning of the room/cohort and the near bedside equipment with Tristel or Chlorclean. See form 1 MRSA care plan.

http://hww-kingsweb/x-files/Infection_Control/MRSA%20Care%20Plan%20forms%20May10/01%20MRSA%20Ward%20Action%20for%20new%20case%20May10.pdf

Management and readmission of known MRSA positive patients

Patients who are known to be MRSA positive must be isolated in a single room or cohorted with other MRSA patients. All admissions should be checked on the Electronic patient records system for MRSA positive alert flag. It the responsibility of A&E, bed managers and the admitting ward to check for IC alert. The nurses transferring and receiving the patient must check MRSA status. Review any indwelling devices, wounds ensuring they are appropriately managed as per trust protocols. Contact precautions must be commenced and a full MRSA screen taken. IPCT must be informed of MRSA positive patients transferred from other hospitals

10. Flow diagram for known MRSA positive patients who require readmission



11. Topical decolonisation of MRSA

The purpose of the topical decolonisation protocol is to try to eliminate MRSA skin carriage, reducing the risk of subsequent wound infection and transmission to other patients. Mupirocin 2% must be limited to a maximum of two, 5-day courses, as prolonged use has been associated with the development of resistance.
Octenisan daily skin wash is advised for MRSA positive patients who have failed to decolonise following two MRSA topical decolonisation protocols.

When a patient has undergone two cycles of MRSA decolonisation protocol but remains **MRSA positive, they may be admitted for surgery.** Please notify the medical team looking after the patient including the surgeon, in good time.

On admission the patient must re-start the MRSA protocol. Ideally, the operation should be scheduled for day 5 of the MRSA protocol.
The protocol must be followed for children aged one month or above,excluding children in the Newborn Unit.

The basic decolonisation regimen:

- **Chlorhexidine gluconate 4% (Hibiscrub or Hydrex)** for body washing daily for 5 days. Hair washing on day 1 and day 5 with Hibiscrub or Hydrex. Patients who cannot tolerate Chlorhexidine 4% must be discussed with the Infection prevention and control team.
- **Mupirocin 2% nasal ointment (Bactroban Nasal)** applied to the inside of the nostrils, using a gloved finger, three times daily for 5 days. Press both nostrils together for a few seconds to thoroughly spread the ointment over the insides of both nostrils. The Chlorhexidine gluconate 4% skin cleanser must be used like a shower gel. Wet the skin and then apply a small amount to a flannel and clean the whole body thoroughly. Pay particular attention to cleaning hair, groin and armpits. Avoid getting cleanser into the eyes. If the MRSA is **mupirocin-resistant,** the following should be used;
  Chlorhexidine gluconate 4% daily skin wash and neomycin nasal cream (Naseptin) applied to the anterior nares four times daily for 5 days. Patients with a nut allergy must not be given Naseptin. The MRSA topical decolonisation protocol for new cases of MRSA must be prescribed and commenced within 4hours from the ward receiving the result from IPCT.

No protocol, however detailed, can meet all the requirements of individual situations. For any other queries, contact the Infection Control Team on Extension 4374 or 4357.

12. Rescreening

Once the patient has completed a five day course, they must be re-screened (see MRSA topical decolonisation algorithm, page 16). If they remain positive after two courses, then daily Octenisan body wash must be given and the patient to remain isolated until discharge.

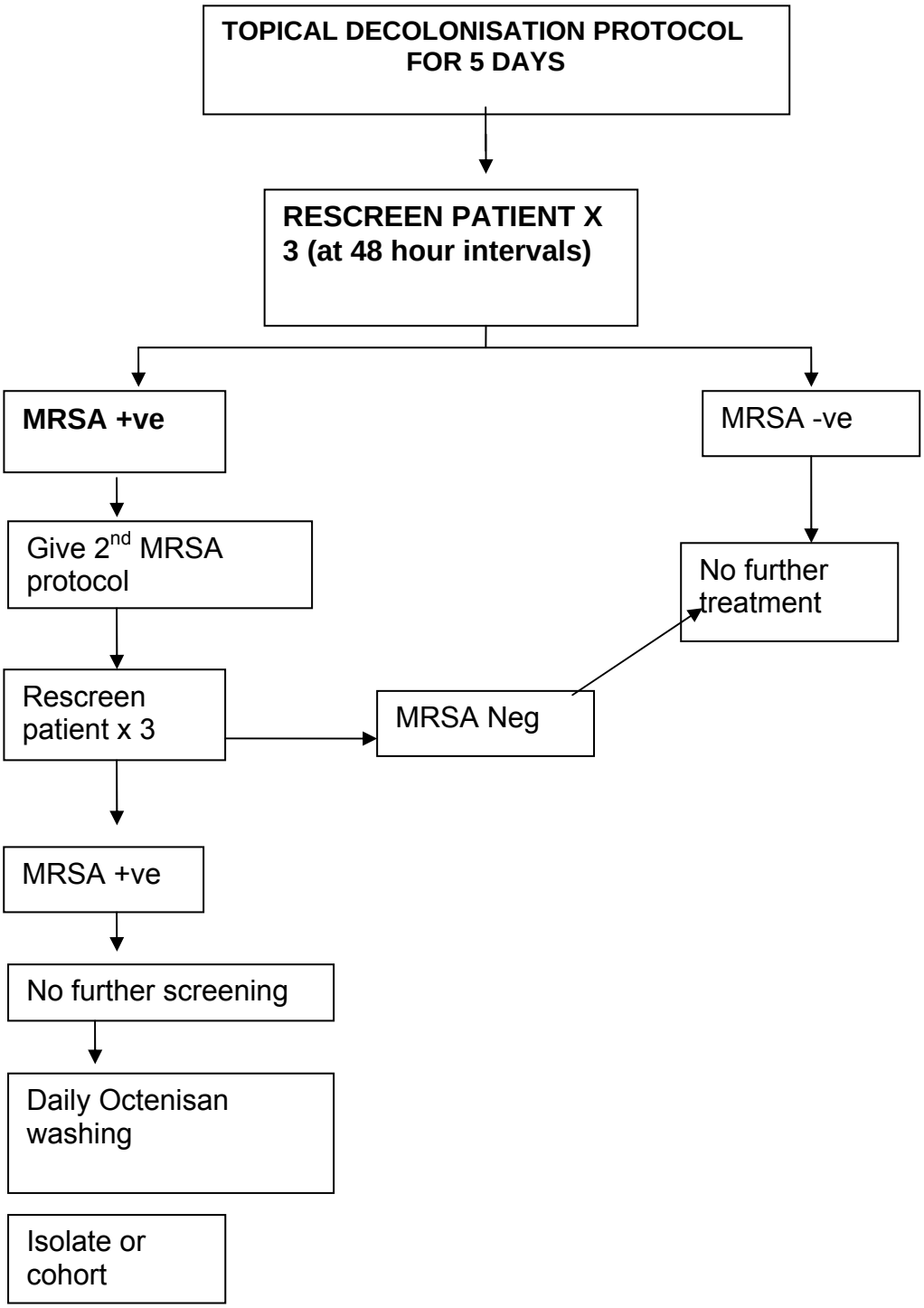
When not to screen

- During topical decolonisation.
- During treatment, and for 2 days after completing treatment with antibiotics to which the MRSA is sensitive. (Except for ITU routine screening).
- Glycopeptides – Teicoplanin or Vancomycin
- Linezolid
- Rifampicin, Fucidin, Trimethropin and Doxycycline.

Note: MRSA positive patients receiving suppression therapy e.g. daily skin washes with Octenisan or Chlorhexidine 4% can have false negative MRSA results. Therefore will be managed as MRSA positive patients, until they have 3 complete clear screens when they are no longer receiving suppression therapy.

12.2 **MRSA topical decolonisation algorithm**
If the patient is found to have MRSA:

ISOLATE OR COHORT WITH OTHER POSITIVE PATIENTS



NB: Patients who currently have, or have had MRSA in the past must have the 5 day skin decolonisation protocol *immediately prior to surgery* to reduce the level of skin/nasal colonisation at the time of surgery. Ideally surgery should be carried out on day 5 of the regimen.

13. Movement of patients with MRSA around the hospital

MRSA positive patients should only be transferred to other wards or departments when absolutely necessary.

Departments should be informed of MRSA status by the person booking the investigation / visit, at the time the booking is made and the ward staff ensure the department is aware at the time of the visit. Surgery for MRSA positive patients should be scheduled at the end of the appropriate list.

Time needs to be available in the department for the room and couch to be cleaned before the next patient is treated.

If an MRSA positive patient is to be transferred to another ward or department,e.g. x-ray, it is essential that the receiving unit and the portering department be informed of the patient's infectious status prior to the transfer.

Staff accompanying the patient during the transfer (e.g. porters and nurses) must undertake a risk assessment of PPE. When PPE is worn it must be changed before leaving the ward and hands decontaminated.

Clean bed linen should be used on the day of the visit to reduce shedding of contaminated particles during the visit.

14. Discharge of MRSA positive patients

If a patient is to be transferred to another healthcare setting, the unit must be notified in advance and the patient's MRSA status documented in the transfer letter.

Patients being discharged must complete their current course of topical MRSA decolonisation treatment. Staff must ensure that patients are discharged with an adequate amount of decolonisation treatment.

15. Action to be taken on discharge of MRSA positive patients

Once the patient has vacated the room or bedspace, an MRSA deep clean must be requested by calling the Medirest desk (Ext: 1414)

It is the nurses' responsibility to clean items such as blood pressure equipment, dripstands and pumps prior to removal from the room or bed area. See deep clean checklist form 1 MRSA care plan appendix.

The yellow clean is carried out by Medirest staff and the protocol for this is displayed on the ward. Bed linen and medical and nursing equipment must be removed from the room prior to the commencement of the clean.

The curtains must be changed and be taken down before beginning the cleaning. Taking down the curtains is Medirest's responsibility but it is a nursing responsibility to ensure that it is carried out.

The "yellow" clean must include the following:

a. Using chlorclean solution/ Tristel: spot clean of walls from bottom to top hand high, ledges above the bed, bed light, windowsill, locker, door, tops of doors, curtain rails, tops of hand towel and soap containers, skirting boards, tops of bin and window frames, every other flat surface where dust is likely to settle must be cleaned. Bed must be raised to allow access to all parts of the bed frames. Bed frames and mattresses must be thoroughly cleaned.
b. Waste removed from room, floor swept thoroughly.
c. Micro fibre cleaning with yellow cloths prepared with Chlorclean solution. The floor washed and allowed to dry.
d. Clean curtains hung.

See deep clean checklist form 1 MRSA care plan.
http://hww-kingsweb/x-files/Infection_Control/MRSA%20Care%20Plan%20forms%20May10/01%20MRSA%20Ward%20Action%20for%20new%20case%20May10.pdf

16. Screening of staff for MRSA carriage

It may be necessary to screen staff if there is an outbreak of MRSA within a ward or department. This decision will be made by the Infection Prevention and Control Team. Staff screening is coordinated by Occupational Health. Results will normally be available within three days, although occasionally additional tests need to be done in the laboratory.Please note that screening of staff is only undertaken in exceptional circumstances

Staff found to have MRSA will be given advice by Occupational Health regarding treatment. Even minor skin sepsis or skin diseases such as exzema, psoriasis or dermatitis amongst staff can result in widespread dissemination of staphylococci. If a ward has an MRSA problem, staff with any of these conditions (colonised or infected) must contact the Department of Occupational Health promptly, so that they can be screened for MRSA carriage. Small cuts / abrasions must always be covered with a waterproof plaster. Staff with infected lesions must not have direct contact with patients and must contact the Occupational Health Department.

A. Glycopeptide Insensitive Staphylococcus Aureus

1. Introduction

Glycopeptide antibiotics such as vancomycin and teicoplanin are the first line antibiotic choice for the treatment of serious MRSA infections. In recent years strains of MRSA have been described which have reduced sensitivity to glycopeptides (GISA or glycopeptide insensitive *Staphylococcus aureus*). The terms VISA (vancomycin insensitive *S. aureus*) and TISA (teicoplanin insensitive *S. aureus*) have also been used to describe subtypes of GISA with selective insensitivity to vancomycin or teicoplanin only.

Sometimes reduced glycopeptide sensitivity is seen in only a proportion of the organisms in a population rather than being uniformly present. These strains are known as hGISA (heteroresistant glycopeptide insensitive *S. aureus*) and can be difficult to detect in the laboratory.

GISA strains exhibit increased production of cell wall precursors which lead to a thickened cell wall and prevent the antibiotics reaching their target site.
GRSA strains which have acquired vanA genes, presumably from glycopeptide resistant enterococci, are able to produce an alternative form of cell wall against which glycopeptides are inactive. Although clinical infections with such strains have been reported, they remain extremely rare.

2. GISA / GRSA in the hospital environment

The emergence of GISA strains as nosocomial pathogens is a recent phenomenon that has been reported from several countries, including the US, Japan and the UK. Most GISA strains are thought to have arisen from pre-existing reservoirs of MRSA. These *de novo* infections have usually been in association with central line related MRSA bacteraemias, infections of prosthetic grafts and/or prolonged and multiple courses of glycopeptide treatment, particularly in patients with underlying chronic diseases and retained infected prosthetic material.

As with MRSA, GISA/GRSA strains are transmissible between individuals. Extensive environmental colonisation was also found in one outbreak on an intensive care unit, which proved difficult to control. Full compliance with contact precautions, hand washing and good environmental cleaning methods is therefore essential to prevent the spread of GISA or GRSA.
Like other strains of *S. aureus*, humans are the main reservoir for these organisms and direct transmission between individuals may occur. They also readily colonise the local environment and are capable of surviving on inert surfaces for up to several weeks.

Transmission of these organisms is via direct person-to-person contact or via indirect transmission from contaminated equipment, environment or the hands of healthcare workers.

3. Infection Control Precautions

On identification of a case of GISA or GRSA the following action must be taken:

 Immediate notification by the medical microbiology staff of the relevant clinical team and infection control team (ICT) on ext 4374/4357

 The ICT will identify the present and any previous ward locations of the patient during the current admission. This will include transfers from other healthcare institutions.

 The South East London Health Protection Unit must be notified – this will be done by the ICT.

4. Care of patients with GISA / GRSA

- The patient must, if at all possible, be isolated in a single room with toilet facilities and a wash basin. Patients with GISA or GRSA take priority over patients with MRSA for side room accomodation

- The patient and visitors must be made aware of, and understand the need for single room isolation whilst an in-patient. An isolation notice must be prominently displayed

- The Infection Control Team may institute contact screening of other patients who have been in the vicinity of the index case

- Appropriate infection control procedures must be implemented. These will include the use of standard precautions (gloves and disposable aprons), meticulous hand hygiene before and after each patient contact and the application of standard hospital protocol for the disposal of clinical waste and management of infected linen.

- All staff caring for the patient must be made aware of how the organism is transmitted and the precautions needed to prevent this.

- The number of healthcare workers caring for the patient must be kept to a minimum, and those with chronic skin conditions, e.g. eczema or psoriasis, must not be involved in the direct care of the patient.

- Intra/inter-hospital transfer of colonised/infected patients must be avoided unless essential. For cases where it is absolutely necessary for patients to be transferred, the receiving ward or institution as well as portering staff must be notified of the patients' colonisation/ infection status prior to transfer.

- On discharge, the room should be deep cleaned as described in

5. Screening

Once a case of GISA / GRSA has been identified, all other patients on the same unit must be screened for carriage.
Depending on the admission history and the outcome of the initial screening exercise, the infection control team will determine whether extended screening of other areas/units is required.
Patients should not be moved between wards or units while the results of screening are awaited, nor should unexposed patients be admitted to empty beds in areas where patients are awaiting results.

6. Topical Eradication of GISA / GRSA

Eradication of GRSA or GISA colonisation/carriage must be attempted using the standard MRSA eradication protocols described in section A, Point 10 of this protocol.

7. Surgical Antimicrobial Prophylaxis

In cases where patients are known to have isolated GISA/GRSA and surgical antimicrobial prophylaxis is required, the clinical team must contact the Microbiology Department (ext. 4360) for further advice.

8. Antibiotic stewardship

Antibiotic resistance will flourish when antimicrobial drugs are abused, misused and dispensed at levels lower than treatment guidelines dictate. As most GISA strains derive from *pre-existing* MRSA pools, measures employed to control the emergence and spread of MRSA must be implemented.

Antibiotic stewardship must be used to minimise the inappropriate use of glycopeptides, limit duration and ensure optimal dosing and therapeutic levels are achieved. These measures aim to reduce the de novo emergence of GISA strains.

9. GISA/GRSA and Surveillance

Whilst the detection of fully resistant strains is relatively straightforward, the detection of intermediate-level resistance is challenging for laboratories. On-going laboratory-based surveillance programs are currently in place to detect and identify these strains.

The laboratory will notify the relevant clinician and the infection control team as soon as possible after the isolation of a presumptive GISA/GRSA strain.

It is important that clinical teams and microbiologists remain aware of the potential for emergence of GISA strains. A high level of suspicion must be maintained, particularly in patients who have received multiple and/or prolonged courses of

glycopeptides antibiotics or who are known to be co-infected/colonised with both MRSA and VRE (vancomycin resistant *Enterococcus)*

10. Dissemination and access to the protocol

Following trust-wide consultation and approval by the King's Executive, it will be posted on the x:drive Infection Control Governance folder and also available via the Intranet. The content of this protocol will be included in corporate induction training provided to all staff. It will also be disseminated through appropriate meetings and forums, including the Infection Control Clinical Leads Meeting. It is the responsibility of the Infection Control Leads to ensure that staff within their divisions are aware of the content of this protocol.

11. Reviewing, updating and archiving of this protocol

The Trust Infection Control Lead in consultation with the Infection Control Doctor and Director of Infection Prevention and Control will be responsible for reviewing this protocol. This review will be at least every two years or sooner if there are significant changes in practice or guidance from a relevant body. Old versions of the protocol will be stored on the x:drive under x:trustwide policies\archive\

12. Evaluation of the protocol

Data will be submitted monthly via the Unify returns on:

- The total number of elective admissions that fall within this protocol as requiring screening
- The total number of screens performed on those patients
- Data will also be produced for divisions identifying the number of elective admissions and pre-admissions or other MRSA testing done on the elective patients required to be tested.
- Information on compliance with this protocol will be included in report to the Board of Directors by the Director of Infection Prevention and Control.

13. Related documents

Isolation protocol (intranet)
Antibiotic guidelines (cliniweb)
Bed management policy (x:drive, trust wide policies folder)
Discharge and transfer policies (x:drive, trust wide policies folder)
Waste Management policy
Cleaning policy.

Appendices

References and glossary

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Department of Health (2003) Winning Ways. Working together to reduce Healthcare Associated Infection in England. http://www.dh.gov.uk/ [Online][1March, 2006]
Department of Health (2006) Screening for Meticillin-resistant *Staphylococcus aureus* (MRSA) colonisation: a strategy for NHS trusts: a summary of best practice. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_063188 [Online][19 September 2008]

Department of Health Operational Guidance on MRSA screening:
http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Dearcolleagueletters/DH_086687 (July 2008)
http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Dearcolleagueletters/DH_092844 (December 2008)
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HOSPITAL NUMBER: .....
SURNAME: .....
FORENAME: .....
DATE OF BIRTH: .....
WARD: …… Bed/room no: .....

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Form 1:
Action following a new MRSA case

This form should be kept in a central location on the Ward and reviewed by the Ward Manager and Matron to check outstanding actions.

DATE OF NEW MRSA POSITIVE RESULT / / Please sign and date actions

	Action (Note: It is important to add date and time when indicated – this is needed for Trust assurance and audit)	Actioned By (Nurse/Matron)	Date
1.	**Source Isolate patient.** Moved to Bed No: Single room Cohort bay Where possible single rooms should be allocated (important for surgical patients), otherwise cohort patients with other MRSA patients. Refer to the isolation policy. **Side Rooms – KEEP DOORS CLOSED!**		/ / Time (24h) :
2.	**Inform the patient and relatives & provide a leaflet.** This must be done by the attending medical or clinical staff.		
3.	**Display Contact Isolation door signage.** Do not use fans!		
4.	**Commence 5 day MRSA suppression protocol.** Ensure Drug chart is signed by Medical staff. Support patient with daily Chlorhexidine wash and document on MRSA Care Plan.		/ / Time (24h) :
5.	**Insert the MRSA Care Plan in patient's folder.** Inform staff caring for the patient to complete daily actions taken.		
6.	**Patient Discharge: If the patient has not completed the 5 days of MRSA protocol please ensure they are given a supply to take home on discharge and it is documented on their discharge letter.**		

Inform all attending staff:

1.	**Staff must wear PPE (Gloves & aprons).** Remove & discard PPE into orange clinical waste bag prior to leaving room/bay.		
2.	**Staff must wash hands or use alcohol gel between patients.** See 5 moments of hand hygiene.		
3.	**Staff must decontaminate equipment between patient use.** Keep patients charts/case notes outside rooms/bays.		

Cleaning:

Action: Patient's vacated bed-space			
1.	**Arrange for the vacated bed space to be deep cleaned.** Refer to 'Deep Clean checklist'		
2.	**If this case is part of a cluster – see ICN action plan**		
Action: Patient's current bed-space. Instruct domestic staff on:			
3.	**Daily clean: beds, surfaces and bays/rooms** (Use Tristel/ Chlorclean 1:1000 ppm)		

4. Mopping floors twice daily (Use Chlorclean 1:1000 ppm)		
5. Ensuring the use of dedicated cleaning equipment		

Deep Clean Checklist

Ward: **Date:…../…../……**

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Once a patient has vacated the room /bed-space, a **deep clean** must be carried out. Chlor-clean must be used to clean the environment and equipment. Roles and responsibilities are outlined below. **The nursing and domestic staff must liaise before a deep clean is commenced.**

Nursing staff *(Ensure patients are moved from the area to be deep cleaned)*	**Please sign and date when completed (Nursing staff)**
Remove bed linen	
Empty locker and clear table of patient's belongings	
Clean all near patient equipment including:	
• Remove mattress from the frame and clean the mattress	
• Dynamap/ blood pressure monitor	
• Commodes and bed pans shells (where applicable)	
• Gel dispensers and holders	
• IV pumps	
• Manual handling equipment	
• Drip stands	
• Pillows	
• Fans	
• Washbowl	
• Oxygen and suction equipment	
• Weighing scale	
Domestic Staff - undertake cleaning in this order:	**Please sign and date when completed (Domestic staff)**
• Empty waste bins. Bins must be cleaned.	
• Take down dirty curtains	
• High level surfaces inc curtain track	
• Walls	
• Window ledges	
• Radiators	
• Locker(s)	
• Table(s)	
• Chair (s)	
• Whole bed frame	
• Folder holder	
• Floor	
• Doors and door handles	
• Put new curtains up after clean completed	

Once deep clean is completed the Ward Sister/ Staff Nurse must sign off this sheet.

Print name: _____

Signature: _____ Date: _____

Keep this form in a central location on the Ward.

HOSPITAL NUMBER:.....
SURNAME: .....
FORENAME:.....
DATE OF BIRTH:.....
WARD: …… Bed/room no:.....

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Form 2: MRSA Care Plan

Date of MRSA positive result: / /

Sites positive:

This form must be attached to the patient's folder.
(Note: It is important to add dates where indicated – this is needed for Trust assurance and audit)

1st Protocol	**Please initial all actions**						
	Nasal Mupirocin (Bactroban) given 3 times a day **or** Naseptin (delete as appropriate) given 4 times a day *	Chlorhexidine 4% scrub. ** Skin & hair wash given (*Do not dilute in wash bowl)*	Bed No.	Linen & pyjamas changed	Bed-space & near patient equipment cleaning checked	Daily HCAI risk assessment ***	Comments
Day 1: / /							
Day 2: / /							
Day 3: / /							
Day 4: / /							
Day 5: / /							
Day 6: / /	**STOP PROTOCOL**						
Day 7: / /							

* *ICNs will advise if Naseptin is required*
** *Chlorhexidine scrub – directions: Use daily in bath or shower, or onto a wet cloth before applying directly onto wet skin.*
Do not dilute in wash bowl. *Pay attention to skin folds, groin and axilla.*
*** ***HCAI risk assessment includes daily check of IV lines; wounds; skin lesions; urinary catheter; Peg site etc***

	MRSA screens taken by:	Other sites swabbed (eg. wounds)	Laboratory result	Date of result	Comments
Day 8 - / / **Screen No. 1**			(If Negative - re-screen (If Positive – contact ICN	/ /	
(Only if Screen No.1 is Negative) **Screen No. 2** / /			(If Negative - re-screen (If Positive – contact ICN	/ /	
(Only if Screen No.2 is Negative) **Screen No. 3** / /			(If Positive – contact ICN	/ /	

If the patient is still MRSA positive – discuss with Infection Control Nurse before starting 2nd Protocol

If the patient is discharged before completing the 5 days of MRSA protocol, please ensure they are given a supply to take home and it is documented on their discharge letter.

MRSA Care Plan continued.

2nd Protocol	**Please initial all actions**						
	Nasal Mupirocin (Bactroban) given 3 times a day **or** Naseptin (delete as appropriate) given 4 times a day *****	Chlorhexidine 4% scrub. ****** Skin & hair wash given (*Do not dilute in wash bowl)*	Bed No.	Linen & pyjamas changed	Bed-space & near patient equipment cleaning checked	Daily HCAI risk assessment *******	Comments
Day 1: / /							
Day 2: / /							
Day 3: / /							
Day 4: / /							
Day 5: / /							
Day 6: / /	**STOP PROTOCOL**						
Day 7: / /							

***** *ICNs will advise if Naseptin is required*
****** *Chlorhexidine scrub – directions: Use daily in bath or shower, or onto a wet cloth before applying directly onto wet skin.*

Do not dilute in wash bowl. *Pay attention to skin folds, groin and axilla.*

****** HCAI risk assessment includes daily check of IV lines; wounds; skin lesions; urinary catheter; Peg site etc***

	MRSA screens taken by:	Other sites swabbed (eg. wounds)	Laboratory result	Date of result	Comments
Day 8 - / / **Screen No. 1**			(If Negative - re-screen (If Positive – contact ICN	/ /	
(Only if Screen No.1 is Negative) **Screen No. 2** / /			(If Negative - re-screen (If Positive – contact ICN	/ /	

(Only if Screen No.2 is Negative) **Screen No. 3** / /			(If Positive – contact ICN	/ /	

If the patient is still MRSA positive, DO NOT REPEAT ANY FURTHER PROTOCOL – discuss with Infection Control Nurse

HOSPITAL NUMBER:.....
SURNAME: .....
FORENAME: .....
DATE OF BIRTH: .....
WARD: …… Bed/room no: .....

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Form 3: MRSA mini RCA

Date of MRSA positive result: / /
Time reported as positive to IC Nurses -
Sites positive:

An Infection Control Nurse (ICN) will undertake this RCA with the Ward Manger or Nurse in Charge and staff caring for the patient. This form will be held by the IC team.

(Note: It is important to add dates & times where indicated – this is needed for Trust assurance and audit)

Mini Root Cause Analysis (RCA) for a new MRSA case			
RCA undertaken by:			
ICN		**Date started**	
Ward Manager		**Date completed**	
Others (specify)			

	Date admitted to ward: / /	**Y/N**
	Was Admission risk assessment done	
1.	Has the patient been admitted from a nursing home or transferred from another hospital?	
2.	Has the patient been in hospital in the last 3 months or visits an outpatient clinic regularly (e.g. renal / diabetic foot clinic)?	
3.	Does the patient have an indwelling device (e.g. Hickman line, urinary catheter or Peg)?	
4.	Does the patient have chronic lesions (e.g. leg ulcers or pressure sores)?	
5.	Is the patient an intravenous drug user	
6.	Has the patient previously had MRSA (check on EPR or confirm with patient)	
	MRSA admission screen taken If yes – result:	
	Were other sites swabbed on admission If yes – result:	

	Risk factors	
	Review from last 10 days	**Y/N**
1.	Did the patient have any lines (CVC or peripheral)? If yes – review line chart. Comments:	
2.	Did the patient have a catheter? If yes – review care chart. Comments:	
3.	Has the patient been moved? If yes – review movement and exposure risk. Comments:	
4.	Has equipment been shared from known MRSA positive cases? If yes – review exposure risk. Comments:	
5.	Has the patient been on antibiotics? If yes – list antibiotic(s) and number of days given:	
6.	Any other risk factors:	

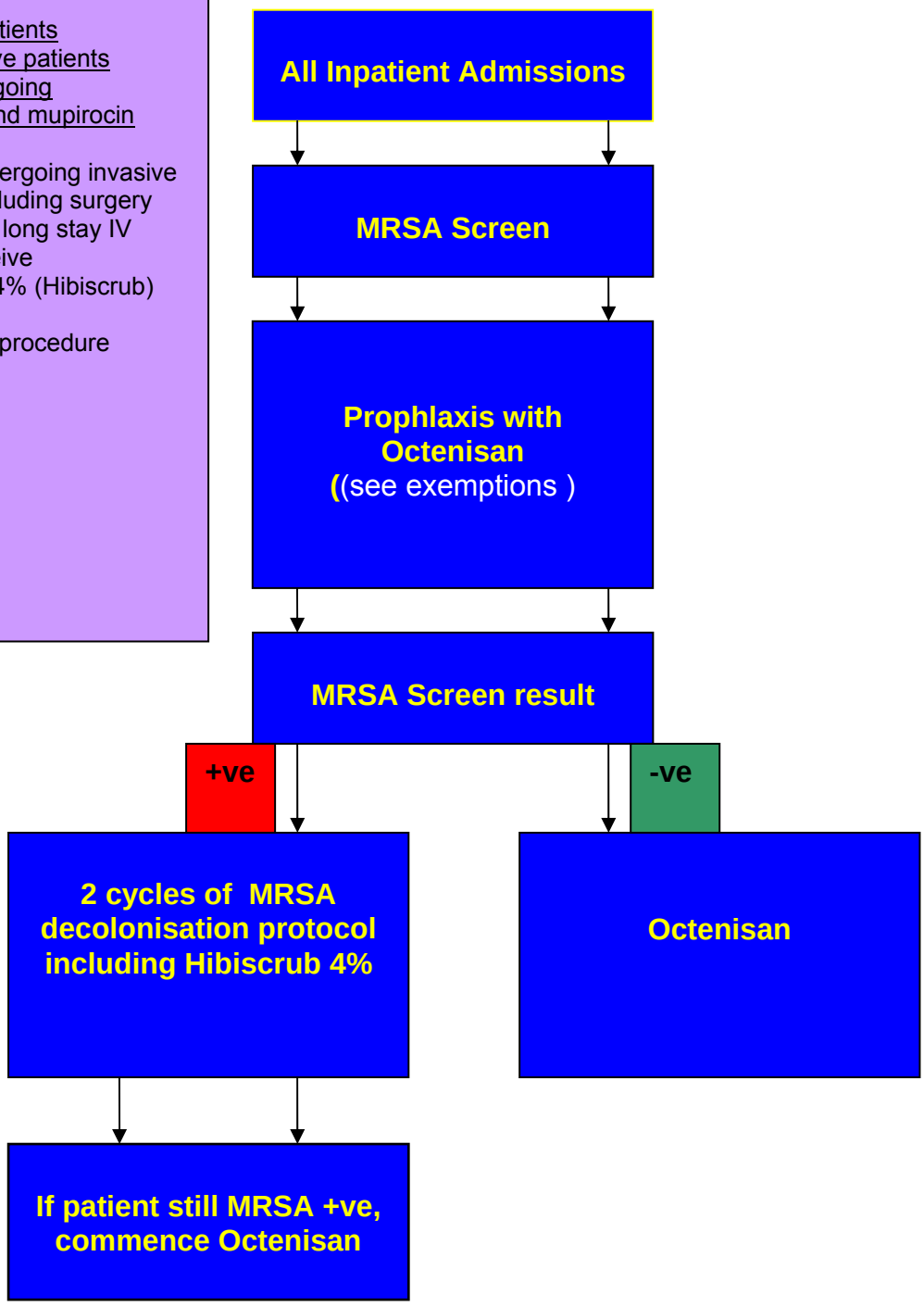
RCA continued… **IC Policy and Process Compliance Reassurance** **(review latest months results – by asking the Ward staff for audits)**				**Lessons learnt and follow-up actions:**
1.	Hand hygiene audit Date done:	Result:		
2.	Environmental audit Date done:	Result:	Nursing: Cleaning: Maintenance:	
3.	How are we doing survey Date done:	Result:	5a Ward cleanliness: 5b Toilet and bathroom cleanliness:	
4.	Central line Saving Lives audit Date done:	Result:		
5.	Peripheral line Saving Lives audit. Date done:	Result:		
6.	Urinary catheter Saving Lives audit. Date done:	Result:		
7.	Other IC audit (please specify): Date done:	Result:		

Trust assurance **(Note: It is important to add dates & times – this is needed for Trust assurance and audit)**				**Compliant?** **Y / N / Not documented**
1.	**Time to Isolate patient.** (Standard: by end of shift)	Date / / Time : (24h)	Moved to Bed No: Single room ☐ Cohort bay ☐	
2.	**Time to commence 5 day MRSA suppression protocol.** (Standard: within 4h of notification of a new MRSA positive status or ICN advice)	Date / / Time : (24h)	Date and Time ward informed -	

Comments:

Flow chart for the use of Octenisan

Exemptions:
1. Paediatric patients
2, MRSA positive patients currently undergoing chlorhexidine and mupirocin decolonisation
3, Patients undergoing invasive procedures (including surgery and insertion of long stay IV devices) to receive Chlorhexidine 4% (Hibiscrub) washes
x 2 before procedure



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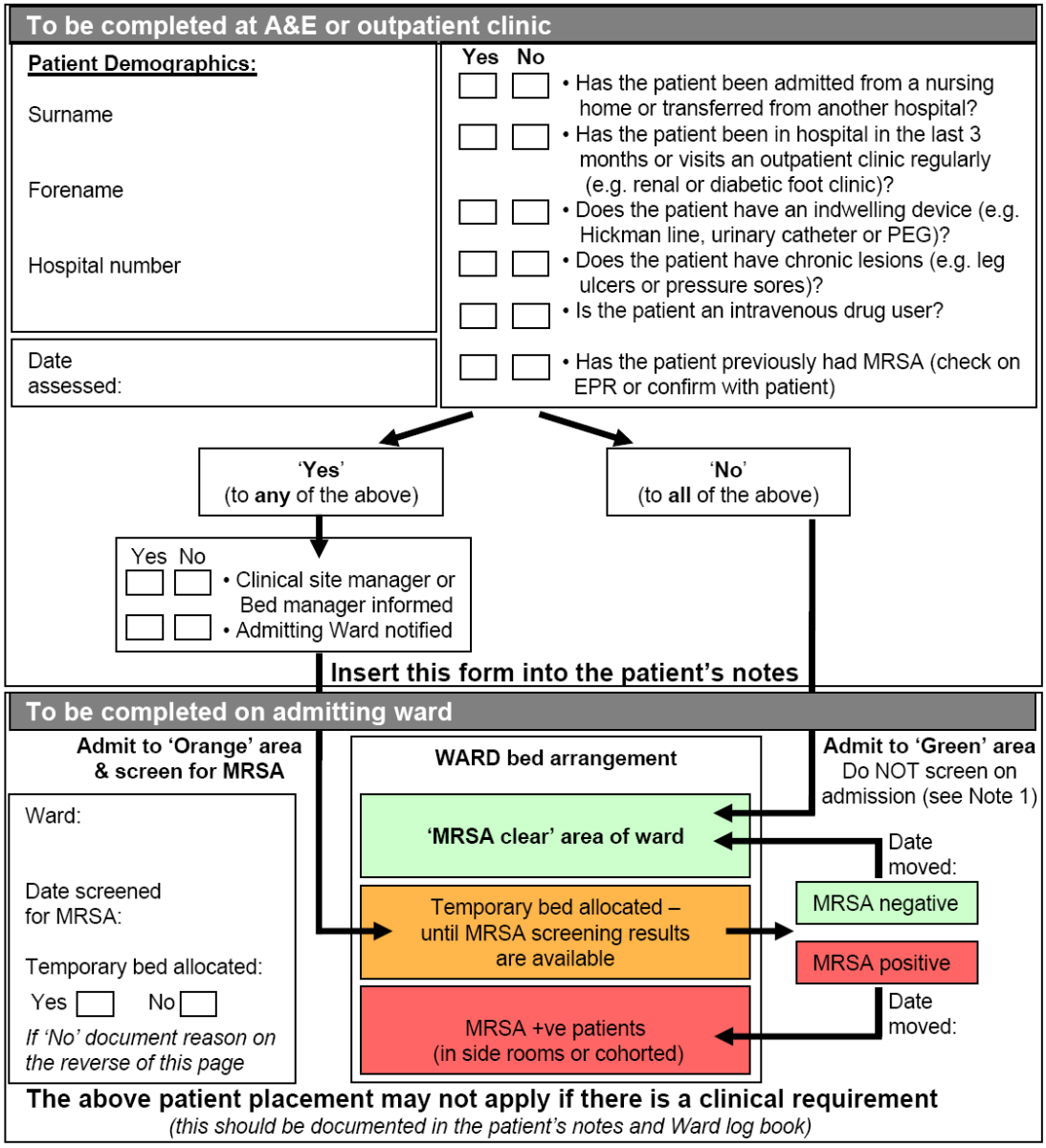
Operational policy for risk management of MRSA

FOR ALL PATIENTS ADMITTED TO KCH



Additional notes:

1. Specific admission protocols apply for ICU, LICU and HDU areas
2. Patients with other alert organisms may also be cohorted in 'red areas' (Infection Control will advise)
3. Follow protocols for elective patients that have been screened at pre-admission clinics

Infection Control Strategy Group. March 2006