MULTI-RESISTANT ACINETOBACTER BAUMANII (MRAB) - CHW

PRACTICE GUIDELINE ©

DOCUMENT SUMMARY/KEY POINTS

- The Infection Control Team should be contacted to advise and assist with the implementation of the Infection Control precautions.
- **Standard and Contact Infection Control precautions must be enforced**.
- Patients with MRAB **MUST** be nursed in a single room or cohorted with other children with the same organism in a dedicated room with ensuite toilet and bathroom facilities.
- Patients should remain in the ward most appropriate to their medical condition. They can be nursed in a positive-pressure room. Transfer to an isolation ward such as Variety ward is not required.
- All staff entering the room must wear PPE including single use long sleeved isolation gown and non-sterile gloves.
- Parents/carers must wear a long-sleeved cloth gown.
- Patient care equipment must be dedicated for the sole purpose of the patient (or cohort room).
- MRAB can contaminate the environment therefore cleaning must be of the highest standard.
- No guidelines currently exist for determining if a patient is clear of MRAB.

CHANGE SUMMARY

- Due for mandatory review. Minor changes throughout to be in line with the other policies for MRO's.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1st September 2014	**Review Period**: 3 years
Team Leader:	Registrar	**Area/Dept**: Microbiology

READ ACKNOWLEDGEMENT

- Nursing & Medical staff working in clinical areas are to read and acknowledge they understand the contents of this document.

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1 Introduction

Multi-resistant *Acinetobacter baumanii* is a gram-negative bacterium that has been associated with hospital acquired infections in other hospitals in NSW, Australia and around the world. This organism is resistant to many commonly used antibiotics.

This organism can survive in the environment and on surfaces such as cots and bed rails and can also colonise the skin. Although it is not a highly virulent bacterium in healthy people, it does cause serious infections in immunocompromised children and burns patients. It will sometimes colonise patients without causing clinically apparent infections and colonised patients can be a source for spread to other patients. Patients with central lines, other foreign bodies and open wounds such as burns are at greatest risk of becoming colonised with this bacterium and of developing invasive infections.

Once this organism becomes established in a unit, it can be extremely difficult to eradicate, so preventing it from becoming established is very important. Routine infection control practices will be highly effective in preventing the transmission of this organism. The organism is generally not spread by droplet or aerosol, but the local environment can become contaminated, so careful hand washing and environmental cleaning are the most important infection control measures.

2 Command and Control

Responsibility for implementation of this policy is to be undertaken by the appropriate clinical line managers caring for affected patients.

The clinical line managers will follow all NSW Health and CHW Infection Control policies and may consult with infection control staff and the microbiologists if further advice or clarification is required.

Issues of dispute between clinical line managers and infection control / microbiology will be referred to the Director of Clinical Operations who in turn will refer any issues to the Chief Executive, if required, for resolution based on best evidence and expert advice.

If there is no policy on a particular issue or the policy needs updating then there needs to be further discussion between clinical line managers, infection control, microbiology and the Director of Clinical Operations to develop a consensus agreement based on best evidence. If a dispute arises about policy it is to be referred to the Chief Executive for resolution.

MRAB infection or colonisation is not mandated as a reportable infection to Public Health Units.

A Reportable Incident Brief (RIB) may be sent to NSW Department of Health on any potential media interests or problems. This is currently the responsibility of the team managing the child with the help of the Clinical Governance Team. The report is submitted by the governance Team.

Microbiologist or Infection Control Practitioner will notify the Director of Clinical Operations of identification of any known MRAB clusters. The Director of Clinical Operations will in turn notify the Chief Executive.

A report on management of any new MRAB isolates will be made to the next Infection Control Committee meeting. The Infection Control Committee minutes will be sent to the Senior Management Group for information.

Any ongoing outbreak of infections or colonisations not responding to appropriate infection control measures will be discussed with members of the clinical executive in collaboration with the appropriate clinical teams to discuss what further actions may be required.

3 Notification of MRAB

Infection Control or the Department of Microbiology will notify wards when a patient is diagnosed as having MRAB. Infection Control will initiate the 'Infectious Risk flag' which manifests as a '**U**' in the Isolation Alert of the Patient Management Information System. The Infection Control Team will ensure that the MRAB is logged in Powerchart.

Following notification staff are required to implement strict Contact Precautions. The MRAB positive result should be documented in the patient's medical record and the child's consultant will inform the family and the child. The Fact Sheet "Information sheet for Parents and Carers" can be down-loaded and given to the patient and family.

4 Infection Control Precautions

The Infection Control Team should be contacted to advise and assist with the implementation of the Infection Control precautions.

Standard Precautions must be maintained at all times, whether or not a patient is known to be carrying MRAB. Laboratory screening for MRAB carriage is slow and never 100% sensitive. All MRAB carriers in a ward or unit may not have been identified. Adherence to standard precautions (along with environmental hygiene and prudent antimicrobial use) is our best defence against the transmission of MRAB and other multi-resistant microbes.

Standard precautions are the following:

- The "Five Moments" of hand hygiene <http://www.hha.org.au/>.
- Use alcohol-based handrub (or wash hands) before contact with a patient or their environment.
- Use alcohol-based handrub (or wash hands with 2% chlorhexidine solution) after contact with a patient or their environment.
- If hands are visibly soiled, alcohol-based handrub should not be used until after all soiled material has been removed with soap and water.

In addition to Standard Precautions, Contact Precautions must be commenced immediately following the notification of a probable or confirmed MRAB. These precautions apply to **all** persons entering the room (medical staff, nurses, physiotherapists, pathology collectors, etc).

Specific requirements for parents, carers, relatives and visitors are outlined later in this document.

4.1 Contact Precautions

Contact Precautions are designed to reduce the risk of transmission of MRAB by direct contact with the patient (skin-to-skin contact) or by indirect contact with environmental surfaces or patient care items in the environment[1]. Contact Precautions are used in addition to Standard Precautions. (Refer to Appendix 1: Flowchart Ward Management of MRAB). Contact precautions are the following:

- Perform hand hygiene before patient contact with alcohol-based handrub (or 2% chlorhexidine solution).
- Wear long sleeved isolation gowns during contact with patient and/or their environment
- Wear non-sterile gloves during contact with patient and/or their environment,
- Wear protective eyewear for contact with the patient, if there is a likelihood of splash and/or when cleaning the environment.
- Perform hand hygiene after patient contact with alcohol-based handrub (or 2% chlorhexidine solution).
- Use of alcohol-based 'hand rub' after leaving patient's room. Allow time for hands to dry. Alcohol-based handrub should not be used until after hand washing if hands are visibly soiled.

4.2 Room Placement

Patients colonised or infected with MRAB bacteria should remain in the ward most appropriate to their medical condition where they can be best cared for. However, they **MUST** be nursed in a single room or cohorted with other children with MRAB in a room with dedicated patient-care equipment such as stethoscopes, thermometers, sphygmomanometers, bedpans, etc. Patients with MRAB must not share a room or bathroom with other patients who do not have MRAB. The patient's room must have a staff hand wash basin. Adequate supplies of gowns, gloves and alcohol 'hand rub' are required outside the room.

4.3 Personal Protective Equipment (PPE) for Staff

MRAB can extensively contaminate the patient's environment. All personnel entering the room must wear appropriate PPE. Single use long sleeved isolation gown and non-sterile gloves must be worn at all times when entering the patient's room or the patient's environment. The gown and gloves must only be worn once and then discarded.

4.3.1 Exception for parents and carers

- Single use long sleeved cloth gown must be worn at all times when in the patient's room. Gloves are not required. The gown must only be worn once and then discarded. Cloth gowns can be worn be parents and carers as they spend lengthy periods in the patient's room.
- Parents and carers must not visit other children in the hospital.

4.3.2 Steps in PPE removal

1. Remove gloves by rolling back from the wrist. Do not touch the skin of the ungloved hand with the other, still gloved, hand.

2. Remove gown and fold carefully with contaminated side in and place in clinical waste bin.
3. Wash hands with 2% chlorhexidine hand wash and water for at least 30 seconds.
4. Leave the room.
5. Use alcohol-based handrub for 15 seconds

Alcohol hand rub must be located inside and outside the patient room for decontamination of hands between different procedures on the patient.

4.4 Patient Care Equipment

Must be dedicated for the sole purpose of the patient or cohorted MRAB-positive patients. The patient should have his / her own equipment such as stethoscopes, sphygmomanometers, thermometers and pans. This equipment should remain in the patient's room for the duration of the patients stay. Once the patient has left the room all dedicated equipment must be discarded, or thoroughly cleaned and then wiped over with alcohol-based handrub, Viraclean or Virex, prior to use on another patient. Visibly dirty or damaged equipment that cannot be cleaned must not be used again; discard, or repair and then clean as above.

4.5 Room Management

Minimal items should be kept in the room. Only essential items, including sterile consumables, should be taken into or stored in the room. Unused stock is to be discarded when the patient has been discharged from the room.

NOTE: Sterile equipment normally processed in the Central Sterilising Service Department (CSSD) should be placed in the Ward CSSD container for return to CSSD. The patient medical record, old notes and x-rays must be kept outside the child's room.

4.6 Transfer of a Patient diagnosed with MRAB from Shared Room

Consult with microbiology regarding possible screening other patients in the room for MRAB. Infectious cleaning of the room and bathroom is required after discharge of the child with MRAB. The bed screen and shower curtains are to be changed.

5 Screening Patients for MRAB

No standardised methods for MRAB carriage screening are available, so screening should only be performed in close consultation with microbiology and infection control.

6 Outpatient Clinic

All patients who are positive for MRAB and need to be seen as outpatients will be seen in a designated area. "Clean – Between" principles must be implemented.

7 Other Departments for Diagnostic Tests

The receiving department must be notified in advance of the patient's positive MRAB status. Porters must wear single use long-sleeved isolation gown and gloves when transporting patients. Parents or carers accompanying the child must wear a clean single use long-sleeved isolation gown. These must be removed and discarded when the patient contact has finished. Wash hands following removal of gown and gloves. All surfaces such as the chair and x-ray table used by the patient must be cleaned as per section 10 of this policy following completion of the test. The cleaning must be attended before the equipment is use for another patient.

8 Operating Theatres

The Operating Theatre Suite must be notified in advance of the patient's MRAB status. Staff must follow the Operating Theatre Practice Guideline "Infection Control: Standard and Additional Precautions for the Operating Suite".

9 Patient Activity Outside Room

- The child can use the outside areas in the hospital grounds.
- The child cannot visit the common food outlet areas.
- The child cannot visit the Starlight Room.
- The child cannot attend the schoolroom.
- The child cannot visit other inpatients.
- Activities and school can be organised in the room.
- All other activities must be negotiated with Infection Control.

10 Room Cleaning Requirements

- Daily cleaning as per the Cleaning Services policy.

  MRAB can extensively contaminate the environment therefore cleaning must be of the highest standard.
- It is advisable to clean the patient room last to accommodate efficient work practice.
- Clean with detergent and water; disinfect by wiping over surfaces with Viraclean or Virex.
- Cleaning must include all surfaces that the patient comes in contact with, paying particular attention to the bed, commodes, chairs, hoists, toilets, hand basins, door handles, bed rails, taps, telephones, and call bells.
- Dedicated cleaning equipment is required. Cleaning cloths and mop heads should not be used elsewhere and after use are subject to normal laundry procedure.

11 Linen and Waste

Used linen and waste should be managed as per Standard Precautions. Linen and waste bags should be removed from the room and taken directly to the collection area.

12 Pathology Specimens

Pathology personnel must comply with Standard and Contact Precautions when entering and leaving the room. Seal specimen receptacles correctly and label accurately. Place specimen and pathology form into a plastic biohazard specimen bag for transport. Tourniquet must be left in room for the duration of patient stay and then cleaned or discarded.

13 Food Services

The combination of hot water and detergent in a dishwasher is sufficient to decontaminate eating utensils. Used eating utensils should be sent directly to the Food Services department.

14 Parents, Carers, Relatives and Visitors

Parents / carers must always wash their hands:

- Before entering the child's room
- After attending to their child's toileting needs or changing nappies
- Before leaving the room and use alcohol hand rub when outside the room

The child may have visitors but the visitors must not visit other children in the ward or use the communal playroom.

Visitors must always wash their hands before leaving the room and then use alcohol hand rub once outside the patient room.

15 Occupational Therapy

Occupational therapists and play therapists are required to wear long-sleeve isolation gowns and non-sterile gloves when in the child's room. All equipment used for the session with the child must be cleaned with Virex or wiped over with Alcohol wipes before the equipment is used for other sessions.

16 Clearing a Patient of MRAB

There is no clearance policy for MRAB

Colonisation with MRAB can persist for many months or even years.

No guidelines currently exist for determining if a patient is clear of MRAB. Laboratory tests are imperfect and may miss low-level carriage.

17 Patient and Family Education

Education and support for the patient and relatives is fundamental to the compliance and understanding of the management of MRAB. (Refer to Patient / Relative Information Sheet: http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/factsheets/parents/MRAB.pdf)

18 Staff Precautions

Contact Precautions must be implemented at all times. Staff can look after other children if required.

19 Cleaning of Room and Bathroom after Discharge

Cleaning procedures are as per Cleaning Services Infectious Cleaning. Discard all pre-sterile consumable items, on discharge only. Equipment normally processed in CSSD should be placed in the Ward CSSD container for return to CSSD. Items for personal hygiene used by the patient are to be discarded.

20 Discharge of Patient from Hospital

Discussion should take place before discharge to ensure the patient and family is fully informed about MRAB. The patient should be requested to alert staff of MRAB status if admitted to another health care facility. Children cannot be discharged to Ronald MacDonald House. Other housing arrangements must be organised.

21 Emergency Department

(Refer to Appendix 2 – Flowchart: Emergency Department Management of MRAB)

21.1 Identifying a patient with MRAB

- An 'Infection Risk Flag' is in place on patients identified with a multi-resistant organism (MRO).
- This manifests as an '**U**' in the Infection Alert on Health-e-Care with the following message;
  - This child has been colonised/infected with MRAB.
  - This child must be placed in Room 12 in Emergency.
  - **Contact precautions** apply wear long-sleeved gown and non-sterile gloves
  - Infection Control **must** be notified if child is admitted.
  - Contact Precautions are to be instigated immediately following identification of a patient with MRAB

21.2 Patient placement

- Requires a dedicated room (or cohort room with patients who have the same organism)
- Ensure the child's used pan and or bottle is placed in the steriliser for cleaning immediately.
- Contact and additional precautions are to be implemented immediately.
- Depending on the patient's clinical status, the most senior doctor on duty is to negotiate with the admitting team for the patient to be transferred directly to ward for admission or assessed / admitted in ED. Advise Bed Management / AHNM of bed requirements as soon as known. Priority for appropriate bed placement is to be given to the patient with MRAB. Remove all non-essential equipment and sterile consumables and equipment from the room.
- Equipment must be dedicated for the sole purpose of the patient or cohorted patients.
- Equipment should be left in the room for the duration of the patients stay.
- Following discharge from the Emergency Department the room occupied by the patient, including the Resuscitation room / treatment room must be "cleaned" as per 'Special Purpose Cleaning Work Procedure 5.12'.

21.3 Patients who require immediate attention

Patients who require immediate attention (for example: resuscitation / cardiac monitoring / joint reduction) are to be managed in the most appropriate area of ED to allow for their appropriate care. However, the implementation of Contact Precautions must occur. Following stabilization, the patient must be admitted to the ward as a priority or transferred to Room 12 within the ED with dedicated bathroom and cared for as above.

Advise Bed Management / AHNM of bed requirements as soon as known.

22 Broad Spectrum Antibiotic Use

Broad spectrum antibiotic use, particularly advanced generation cephalosporins such as cefotaxime and ceftriaxone, have consistently been reported as risk factors for infection and colonisation with multiresistant bacteria[2, 3, 4] and will certainly increase the colonisation-density and likelihood of transmission of these organisms by carriers. Narrow spectrum antibiotics (particularly penicillins) should therefore be used as alternatives wherever possible. Most broad spectrum antibiotics are restricted agents under the Hospital's Antibiotic Stewardship policy and therefore require prior approval or registration within 24 hours of commencement.

Antibiotic advice is always available from the Infectious Diseases or Microbiology consultant on-call, or the Infectious Diseases registrar during normal work hours.

23 Glossary

Colonisation: The presence of an organism in the body without symptoms or clinical manifestations of illness or infection

Infection: Is characterised by a condition in which organisms capable of causing disease enter the body and elicit a response from the host's immune defences

24 Related Documents

- **MRAB Fact Sheet** for parents: http://chw.schn.health.nsw.gov.au/ou/infection_control/resources/factsheets/parents/MRAB.pdf
- **Antibiotic Stewardship Policy**: http://chw.schn.health.nsw.gov.au/o/documents/policies/policies/2008-8007.pdf
- **Infection Control: Additional and Standard Precautions in the Operating Suite Practice Guideline:** http://chw.schn.health.nsw.gov.au/o/documents/policies/guidelines/2009-8063.pdf

25 References

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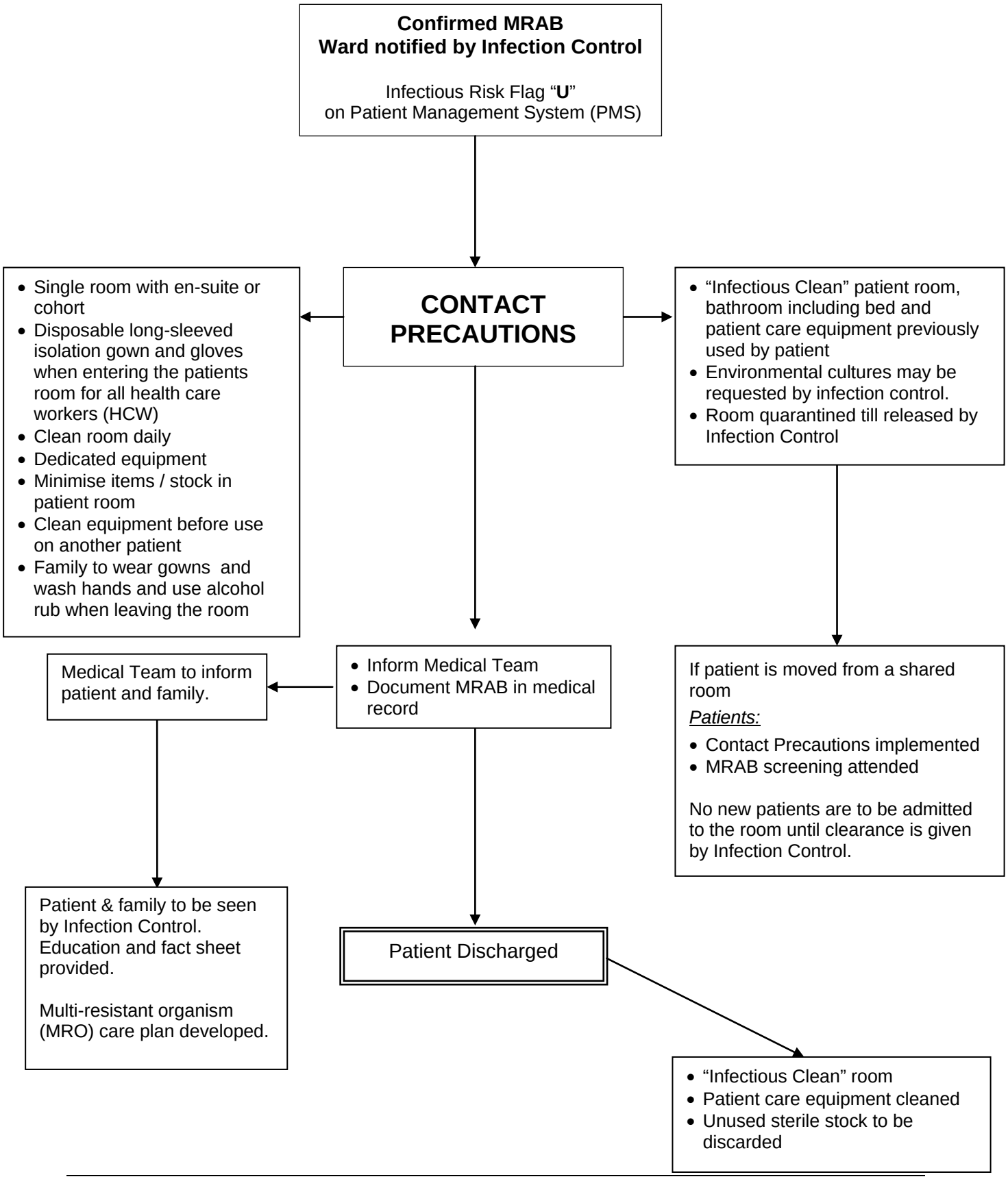
2. Kim YA. Choi JY. Kim CK. Kim CO. Kim MS. Choi SH. Chin BS. Han SH. Lee HS. Choi HK. Jeoung SJ. Song YG. Yum JH. Yong D. Lee K. Kim JM 2008. Risk factors and outcomes of bloodstream infections with metallo-beta-lactamase-producing Acinetobacter. Scandinavian Journal of Infectious Diseases. 40(3):234-40
3. de Man, P, Verhoeven, BA, Verbrugh, HA, Vos, MC, van den Anker, JN 2000, "An antibiotic policy to prevent emergence of resistant bacilli". Lancet, Vol. 355, No. 9208, pp. 973-8.
4. Graffunder, EM, Preston, KE, Evans, AM, Venezia, RA 2005, "Risk factors associated with extended spectrum beta-lactamase organisms at a tertiary care hospital". Journal of Antimicrobial Chemotherapy, Vol. 56, No. 1, pp. 139-45.

Appendix 1: Ward Management of MRAB



Appendix 2: Emergency Department Management of MRAB