Section 4: INFECTION CONTROL POLICIES RELATED TO SPECIFIC DISEASES

TITLE/DESCRIPTION:	INDEX NUMBER
MULTI DRUG RESISTANT ORGANISMS (MDRO) MANAGEMENT	**ICM - IV - 01**

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	**All GCC Countries**	**GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)**

DEFINITION

This policy outlines the required steps needed to prevent the transmission of multidrug-resistant microorganisms (MDROs) within and between hospitals.

REFERENCES

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 29: Isolation precautions. In APIC Text of infection control and epidemiology (4th ed.)
2. HICPAC/CDC Guidelines for isolation precautions: preventing transmission of infectious agents in healthcare setting, 2007.

COMMENTS

1. MDROs are bacteria that are resistant to many or all available antibiotics.
2. Methicillin-Resistant Staphylococcus Aureus (MRSA) and Vancomycin-Resistant Enterococci (VRE) are important resistant microorganisms encountered in the hospital; refer to **ICM–IV-02** Methicillin-Resistant Staphylococcus Aureus Management and **ICM–IV-03** Vancomycin-Resistant Enterococcus Management.
3. Extended Spectrum Beta-lactamases (ESBLs) and Carbapenem-Resistant Enterobacteraceae (CRE) are among primary resistant microorganisms of significant concern in the healthcare setting and are endemic in many hospitals of the GCC countries. Proper attention to these pathogens is critical to curtail further emergence of these highly resistant organisms.
4. STANDARD PRECAUTIONS MUST BE OBSERVED FOR ALL PATIENT CARE.

PROCEDURE

A. Notification of the MDRO

1. The microbiology lab will notify the ward and Infection Prevention and Control (IP&C) Department of the MDROs.
2. Patients previously discharged MDRO positive are flagged and documented by IPs.
3. Only IPs can deflag / remove MDRO alerts.

B. Management of MDRO-Positive Patients

1. Initiate contact precautions in addition to standard precautions.
2. Patient must be in a single room or can be cohorted with another patient with the same organism.
3. MDRO-positive patients who are in multi-bed rooms can be managed temporarily while waiting to be transferred to a single room or an appropriate cohort.
   a. Place a sign on the cubicle or curtain of the patient's bed.
   b. WEnsure easy access to PPE and alcohol-based hand rub.
   c. Practice strict standard precautions between interactions with patients in the room.
   d. Transfer to a single room or cohort with another patient with the same organism as soon as possible.

4. Place a contact isolation sign on the outside of the isolation room door.
5. Practice strict hand hygiene.
6. Cohort non-critical items such as stethoscopes and pressure cuffs with the patient.
7. Store the minimum amount of supplies in the patient's room.
8. Use an isolation cart for extra supplies (kept outside the room).
9. Ensure that all staff understand and comply with the isolation precautions and hand hygiene protocol.
10. Limit the patient's activity outside the room to treatments or tests.
11. Notify receiving departments/wards (e.g., Radiology, Endoscopy, Clinics, OR) of the patient's isolation status when the patient must be transported for treatment/tests. Refer to **ICM–III-09** Transporting Patients on Isolation Precautions.
12. Ensure concurrent and terminal cleaning of the isolation room and equipment as per house keeping procedure.
13. Handle/discard contaminated items as per Standard Precautions. Refer to **ICM–II-03** Standard Precautions.

C. Medical

1. Request Infectious Diseases consultation as needed.
2. Discharge the patient from the hospital once his/her medical condition allows.
3. If the patient is being transferred to another hospital or healthcare facility while still colonized or infected with an MDRO, the transferring hospital is obliged to inform the receiving hospital of the details of the MDRO in order to ensure proper isolation. EMS and other healthcare providers involved in transferring such a patient need to be made aware of the status of the patient and advise on proper PPE, as well as, disinfection of the ambulance, as deemed necessary.

D. Clearance/Discontinuation of Isolation

1. Discontinue isolation of MDRO-positive patient after consultation with the IPs.

E. Screening of Healthcare Workers (HCWs) and the Environment

1. Do not screen HCWs or the environment because it is not typically indicated and incurs unnecessary costs.
2. IP&C may initiate such measures when indicated.

F. Outbreak Management

1. Management of outbreaks will be coordinated by the IPs and will require the cooperation of medical, nursing, laboratory and other departments.

G. Cleaning of the Patient's Room

1. Perform regular or terminal cleaning based on **ICM-X-07** Housekeeping.

H. Linen

1. Keep a linen hamper in the isolation area.

TITLE/DESCRIPTION:
METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA) MANAGEMENT

INDEX NUMBER
ICM - IV - 02

EFFECTIVE DATE:
01/01/2009
01/01/2013
01/01/2018

APPLIES TO:
All GCC Countries

ISSUING AUTHORITY:
GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

This policy describes the steps needed to prevent the spread of Methicillin-Resistant Staphylococcus Aureus (MRSA) to patients, staff, and visitors.

REFERENCES

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 93: Staphylococcus. In APIC Text of infection control and epidemiology (4th ed.).
2. APIC Guide to the elimination of methicillin-resistant staphylococcus aureus (MRSA) transmission in hospital settings, March 2007.
3. Infection Prevention and Control Manual, **ICM-IV-10** Rapid MRSA surveillance.

COMMENTS

1. MRSA refers to strains of Staphylococcus aureus that are resistant to synthetic penicillin (oxacillin, nofloxacin, and methicillin). It is also resistant to cephalosporins, other betalactam antibiotics and sometime to other antibiotics (erythromycin, clindamycin, aminoglycoside, and quinolones).
2. Concerns about MRSA are related to the potential for healthcare-associated infections (HAIs) transmission and the limited number of antibiotics available to treat infections caused by this microorganism.
3. Screening can be initiated in the Emergency Department (ER).
4. Patients being admitted from the ER who qualify for screening should not be held in the ER awaiting screening results, as this will unnecessarily delay admission.
5. Initiate empiric contact isolation precautions during the screening procedure.
6. STANDARD PRECAUTIONS MUST BE OBSERVED FOR ALL PATIENT CARE.

PROCEDURE

A. Management of Patients with Suspected MRSA Infection or Colonization

1. Initiate empiric contact isolation precautions during the screening procedure, if possible.
   a. Screen all patients who are:
      i. Admitted to the intensive care units (ICU).
      ii. Transferred from other hospitals or have been treated in another hospital/clinic within the past six months.
      iii. Undergoing liver or cardiac, orthopedic (including spine) surgery (pre-operatively).
      iv. Hemodialysis patients admitted for their first dialysis treatment and for placement of any type of vascular access (i.e., AV-fistula, permanent catheter, graft or port access device).
      v. Known to be previously MRSA positive.
      vi. Roommates of positive patients not on isolation precautions.
   b. Sites to screen include:
      i. Anterior nares.
      ii. Non intact skin areas (e.g., tracheostomy, pressure sores or surgical wounds).
      iii. Neonates and pediatric patients awaiting liver or cardiac surgery should also have both the groin and axilla screened.

c. Specimen collection for nares only:
   i. Use sterile red-top tube with double-tip dry culture swab for rapid testing. Refer to **ICM-IV-10** Rapid MRSA Surveillance.

d. Specimen collection for other sites:
   i. Use the packet with a sterile swab stick with transport medium.
   ii. Clean the site with normal saline to remove debris before swabbing.
   iii. Use the same swab for identical sites: one swab for both axilla and one swab for both inguinal areas.
   iv. Use separate swabs to screen other sites.
   NB: The accompanying requisition should request "MRSA screen."

e. Patient placement upon admission:
   i. Request a single room for contact isolation from the Admission Office. If a single room is not available then two or more patients receiving MRSA screening may be cohorted after consultation with infection control.
   ii. Observe contact isolation precautions in addition to standard precautions.
      - Place a contact isolation sign on the outside of the isolation room door or on the bed if the patient is sharing a room.
      - Ensure that all staff understand and comply with the isolation precautions and hand hygiene policy.
      - Change all PPE and perform hand hygiene between patients in the same room (barrier precautions).
      - Cohort non-critical items such as stethoscopes and pressure cuffs along with each patient.
      - Store the minimum amount of supplies in the patient room.
   iii. Limit the patient's activities outside of the ward.
   iv. Notify receiving departments/wards (e.g., Radiology, Endoscopy, Clinics, OR) of the patient's isolation status when the patient must be transported for treatment/tests. Refer to **ICM–III-09** Transporting Patients on Isolation Precautions.
   v. If the patient is MRSA positive, refer to "Management of MRSA-positive patients" below.

B. Management of MRSA-Positive Patients

1. Patients determined to be MRSA positive from surveillance screening (rapid test) or clinical specimens upon or after admission.
2. Readmitted patients that were MRSA positive on discharge (flag/alert).
3. Microbiology Laboratory:
   a. Notify the ward of MRSA-positive patients.
   b. Notify the Infection Preventionist (IP) of all new positive MRSA cultures.
4. Nursing:
   a. Request a single room for contact isolation from Admission Office. If a single room is not readily available, two or more MRSA-positive patients can be cohorted after consultation with infection control.
   b. MRSA-positive patients who are in multi-bed rooms can be managed temporarily while waiting to be transferred to a single room or an appropriate cohort.
      i. Place a sign on the cubicle or curtains of the patient's bed.
      ii. Ensure easy access to PPE and alcohol-based hand rub.
      iii. Practice strict standard precautions between interactions with patients in the room.
      iv. Transfer to a single room or cohort with another patient with the same organism as soon as possible.

c. Observe contact isolation precautions in addition to standard precautions with all patient care activities.
   i. Place a contact isolation sign on the outside of the isolation room door.
   ii. Ensure that staff understand and comply with the isolation precautions and hand hygiene protocol.
   iii. Cohort non-critical items such as stethoscopes and pressure cuffs along with the patient.
   iv. Store the minimum amount of supplies in the patient's room.
   v. Use an isolation cart for extra supplies (kept outside the room).
d. Rescreening of MRSA-positive patients must occur in consultation with the IP.
e. Screen exposed patients who shared a room with a known MRSA-positive patient for more than 48 hours .
f. Limit the patient's activities outside of the ward.
g. Notify receiving departments/wards (e.g., Radiology, Endoscopy, Clinics, OR) of the patient's isolation status when the patient must be transported for treatment/tests. Refer to **ICM–III-09** Transporting Patients on Isolation Precaution.
h. Maintain contact isolation during decolonization process.
i. Ensure concurrent and terminal cleaning of the isolation room and equipment as per house keeping procedure.
j. Handle/discard contaminated items as per standard precautions. Refer to **ICM–II-03** Standard Precautions.
k. Cohorting nursing staff providing direct patient care is recommended.

5. Medical:
   a. Restrict antibiotic use (especially broad-spectrum antibiotics) and invasive devices when possible.
   b. Discharge the patient when his/her medical condition allows.
   c. Seek the advice of Infectious Diseases Consultants or IP regarding possible decolonization.

C. Discontinuation of Contact Isolation

1. Discontinuation of isolation precautions for a MRSA-positive patient must occur in consultation with the IP and MRP.
2. Criteria for discontinuing isolation:
   a. Antibiotic therapy is completed at least three days prior to rescreening.
   b. Vancomycin levels should be zero prior to rescreening.
   c. Three consecutive negative culture from all previously positive sites. If the first set of sample which was taken 3 days off antibiotics is negative, repeat cultures 48 hours later.
   d. The patient should not be receiving antibiotic therapy at any time during the screening process.

D. Rescreening MRSA-positive Patients for the Purpose of Discontinuing Contact Isolation

1. Sites to screen are:
   a. Anterior nares
   b. Previously positive sites
   c. Any indwelling catheter sites
   d. Non intact skin areas (e.g., tracheostomy, pressure sores or surgical wounds).
2. Specimen Collection:
   a. Refer to **ICM-IV-10** Rapid MRSA Surveillance for nares only.

b. For other sites, use the packet with blue-top sterile swab stick with gel.
   i. Use the same swab for identical sites (e.g., axilla and groin).
   ii. Use separate swabs to screen other sites.

NB: The accompanying requisition should request "MRSA screen." If your hospital is processing MRSA from other sites for rapid testing/PCR molecular, then use the red top-swab stick.

E. Screening of Healthcare Workers (HCWs) and the Environment

1. Do not screen HCWs or the environment because it is not normally indicated and incurs unnecessary costs.
2. IP&C may initiate such measures when indicated.

F. Outbreak Management

1. Management of outbreaks will be coordinated by the IP and will require the cooperation of medical, nursing, laboratory and other departments.

G. Cleaning of the Patient's Room

1. Regular cleaning as per housekeeping protocol.
2. Terminal cleaning upon patient discharge.
3. The room can be used as soon as all cleaned surfaces are dry.

H. Linen

1. Keep a linen hamper in the isolation area.

I. Ambulation

1. Patients with infected body fluids:
   a. If they are able to contain their body fluids (secretions, urine, stool), patients may walk in the corridors but cannot enter the visitor/patient area.
   b. If unable to contain their body fluids, patients must be encouraged to stay in their rooms and be reassessed frequently.

J. Sitters/Visitors

1. Provide information about MRSA as required.
2. Hand hygiene must be emphasized after patient contact.
3. Sitters and visitors must be instructed to wear appropriate PPE if assisting with direct patient care.

K. Decolonization Protocol (refer to Form 1– IV-01 MRSA Decolonization Procedure)

1. Treat nares topically for periods not exceeding seven days with Bactroban (Mupirocin) cream (only if the organism is Mupirocin-sensitive); restrict use, as resistance to this agent is well documented.
2. IP will assess patients on an individual basis to determine the need for decolonization with chlorhexidine wash (suppressive therapy) to reduce/inhibit MRSA skin colonization.
3. Apply this protocol to patients awaiting liver transplants or cardiac, or orthopedic surgery, or hemodialysis patients requiring AV/fistula creation.

Form 1 – IV-02:
MRSA Decolonization Procedure

Assessment for decolonization will be performed by the Infection Preventionist (IP) in consultation with the attending physician and an Infectious Disease Consultant.

Maintain Contact Isolation during decolonization treatment.

SUPPLIES: Chlorhexidine gluconate (CHG) 4%
Mupirocin/Bactroban, per MD order
Clean linens for the bed and patient
Personal protective equipment (PPE)

1. Spread full-strength Chlorhexidine gluconate 4% solution from neck to toes, ensuring coverage of underarms, groin, and between fingers and toes.
   - Rinse with warm water and dry your skin from neck to toes with a clean towel.
   - Change the bed linens and the patient's clothing completely after each bath/shower.
   - Repeat this process twice a day.
   - Shampoo hair with the Chlorhexidine solution for 3 days

2. Apply Mupirocin/Bactroban ointment to anterior nares (inside nose) after Chlorhexidine treatment, when the patient is dry and dressed as ordered by the MD.

   NB: Mupirocin should not be applied to open wounds.

3. These treatments must be given for 7 consecutive days.

4. Take a complete set of cultures from nares and previously positive sites 72 hrs after decolonization
   - If first set of samples is negative repeat cultures 48 hrs later

5. Three negative cultures are required before the patient is cleared of MRSA and can be taken out of isolation.

   NB: These results will be assessed by the IP.

NOTES:
- The patient must not be on antibiotics at the time of screening.
- If any swab is positive, stop the screening process until further assessment.
- Please complete all documentation on this form.

Form 1 – IV-02... con't:
MRSA Decolonization Record

START TIME: _____

TREATMENT TIME		CHLORHEXEDINE 4% WASH & SHAMPOO	MUPIROCIN / BACTROBAN OINTMENT	INITIALS
Day 1	AM			
	PM			
Day 2	AM			
	PM			
Day 3	AM			
	PM			
Day 4	AM			
	PM			
Day 5	AM			
	PM			
Day 6	AM			
	PM			
Day 7	AM			
	PM			

SCREENING 1: Day 11 DATE DUE: _____ DONE: _____

SCREENING 2: Day 14 DATE DUE: _____ DONE: _____

SCREENING 3: Day 17 DATE DUE: _____ DONE: _____

COMMENTS:

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TITLE/DESCRIPTION:	INDEX NUMBER
VANCOMYCIN-RESISTANT ENTEROCOCCI (VRE) MANAGEMENT	ICM - IV - 03

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	All GCC Countries	GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

To describe the steps needed to prevent the spread of Vancomycin-Resistant Enterococci (VRE).

REFERENCES

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 29: Isolation precautions. In APIC Text of infection control and epidemiology (4th ed.).
2. HICPAC/CDC Guidelines for isolation precautions: preventing transmission of infectious agents in healthcare setting, 2007.

COMMENTS

1. VRE are inherently resistant to most antibiotics and can easily acquire resistance to the remaining antibiotics. In addition, they are capable of transferring this resistance to other bacteria such as staphylococci.
2. VRE are dispersed easily into the environment and are easily spread by the intermittent colonization of the hands of healthcare workers (HCWs). Items such as bedrails, stethoscopes, blood pressure cuffs are reservoirs for VRE.
3. STANDARD PRECAUTIONS MUST BE OBSERVED FOR ALL PATIENT CARE.

PROCEDURE

A. Screening for VRE

1. Screen all patients who are:
   a. Known to be previously VRE positive within the past 6 months or more.
   b. Roommates exposed to VRE-positive patients for more than 48 hours.
   NB: The accompanying requisition should request "VRE screen."
2. Sites to screen:
   a. Peri-anal area.
   b. Wounds and catheter exit sites.

B. Microbiology Laboratory must

1. Notify the ward of positive VRE cultures.
2. Notify the Infection Preventionist (IP) of all positive VRE cultures.

C. Management of Patients who are Undergoing a VRE Screen

1. A single room is not needed.
2. Maintain standard precautions and strict hand hygiene practices.
3. If patient is VRE positive, follow the management protocol outlined below.

D. Management of VRE-Positive Patients

1. Nursing
   a. Request a single room with a bathroom from the Admission Office.
   b. Initiate contact isolation precautions in addition to standard precautions.
      i. Place a contact precautions sign on the outside of the room door.
      ii. Maintain strict hand hygiene technique.
      iii. Wear a gown and gloves when entering the patient's room.
      iv. Cohort non-critical items such as thermometers and pressure cuffs with the patient.
      v. Store a minimum amount of supplies in the patient's room.
      vi. Use an isolation cart for extra supplies (outside the room).
   c. Screen all patients who have shared a room with the VRE-positive patient for more than 48 hours for VRE.
   d. Limit the patient's activities outside of the room/ward; refer to **ICM–III-09** Transporting Patients on Isolation Precautions.
   e. Ensure concurrent and terminal cleaning of isolation room and equipment as **ICM-X-07** on Housekeeping.
   f. Handle/discard contaminated items as per Standard Precautions; refer to **ICM–II-03** Standard Precautions.
   g. Cohort nursing staff providing direct patient care.
   h. Notify receiving departments/wards (e.g., Radiology, Endoscopy, Clinics, OR) of the patient's isolation status when the patient must be transported for treatment/tests. Refer to **ICM–III-09** Transporting Patients on Isolation Precautions.
   i. Maintain contact isolation until infection control has been consulted regarding the discontinuation of isolation.
2. Medical
   a. Seek Infectious Diseases Consultants as needed.
   b. Be judicious with antibiotic use, especially that of vancomycin.
   c. Discharge the patient if his/her medical condition allows.

E. Discontinuation of Contact Isolation

1. Discontinue isolation of VRE-positive patient after consultation with the IP and the attending physician.
2. Criteria for discontinuing isolation
   a. Three consecutive negative cultures from all previously positive sites and stool/peri-rectal swabs. If the first set of sample which was taken 3 days off antibiotics is negative, repeat cultures 48 hours later
   b. Patients should be off antibiotic therapy for a minimum of 72 hours prior to screening.

F. Screening of HCWs and the Environment

1. Do not screen HCWs or the environment because it is not typically indicated and incurs unnecessary costs.
2. Consult the Infection Preventionist (IP) before such measures are taken.

G. Outbreak Management

Active surveillance will be coordinated by Infection Prevention & Control as needed and will require cooperation from Medical, Nursing, Laboratory, and other departments.

TITLE/DESCRIPTION:	INDEX NUMBER
HEPATITIS A VIRUS EXPOSURE MANAGEMENT	ICM - IV- 04

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	All GCC Countries	GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

To describe the need for and the recommended prophylaxis for persons exposed to a confirmed case of Hepatitis A Virus (HAV).

REFERENCES

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 97: Viral hepatitis. In APIC Text of infection control and epidemiology (4th ed.).
2. Prevention of hepatitis A through active or passive immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP), May 2006:55(RR07);1-23
3. Red Book (2012). Report of the Committee on Infectious Diseases. The American Academy of Pediatrics.
4. Update: Prevention of hepatitis A after exposure to hepatitis A virus and in international travelers. Updated recommendations of the Advisory Committee on Immunization Practices (ACIP), October 2007:56(41);1080-1084.

COMMENT

A single Intramuscular (IM) dose of immunoglobulin (IG) or the Hepatitis A vaccine series is the post exposure prophylaxis for HAV exposure.

PROCEDURE

A. Indications for post-exposure prophylaxis with immunoglobulin (IG) or Hepatitis A vaccine for a non-immune person

1. Close personal contact
   IG or Hepatitis A vaccines should be administered to all household and sexual contacts of persons who have serologically confirmed Hepatitis A.
2. Daycare centers
   Immunoglobulin (IG) or Hepatitis A vaccines should be administered to all staff and attendees of daycare centers or homes if:
   a. One or more cases of Hepatitis A are recognized in children or employees.
   b. Cases are recognized in two or more households of center attendees.
3. Common-source exposure
   If a food handler is diagnosed with Hepatitis A, immunoglobulin or Hepatitis A vaccine should be administered to other food handlers at the same location. Since common-source transmission to patrons is unlikely, immunoglobulin or Hepatitis A vaccine administration to patrons is usually not recommended but may be considered if:
   a. During the time the food handler was likely to be infectious, the food handler both directly handled uncooked foods or foods after cooking and had diarrhea or poor hygienic practices.

b. Patrons can be identified and treated within two weeks of the exposure.
In settings where repeated exposures to HAV may have occurred (e.g., institutional cafeterias), stronger consideration of immunoglobulin (IG) or Hepatitis A vaccine use may be warranted. In the event of a common-source outbreak, immunoglobulin (IG) should not be administered exposed persons after cases have begun to occur because the two-week period during which the IG is effective will have been exceeded.

4. Schools, hospitals, and work settings
IG or Hepatitis A vaccination is not routinely indicated when a single case occurs in an elementary or secondary school, an office, or in other work settings and the source of infection is outside the school or work setting. Similarly, when a person who has Hepatitis A is admitted to a hospital, staff should not be routinely administered IG or Hepatitis A vaccines; instead, careful hygienic practices should be emphasized. Immunoglobulin (IG) or Hepatitis A vaccines should be administered to persons who have had close contact with index patients if an epidemiologic investigation indicates that HAV transmission has occurred among students in a school or between patients and staff in a hospital.

B. Recommendations for Post-exposure Prophylaxis with Immunoglobulin (IG) or Hepatitis A Vaccine

1. Persons who have recently been exposed to HAV and who previously have not received Hepatitis A vaccination should be administered a single dose of the single-antigen vaccine or IG (0.02 ml/kg) as soon as possible.
2. For healthy persons aged 12 months to 40 years, the single-antigen Hepatitis A vaccine is preferred to IG because of the advantages inherent to the vaccine.
3. For persons aged greater than 40 years, immunoglobulin (IG) is preferred because of the absence of information regarding vaccine performance and the more serious manifestations of Hepatitis A in this age group. The vaccine can be used if immunoglobulin (IG) is not available.
4. Immunoglobulin (IG) should be used for children less than 12 months of age, immuno-com promised persons, persons diagnosed with chronic liver disease and persons for whom the vaccine is contraindicated.
5. Persons administered immunoglobulin (IG) for whom the Hepatitis A vaccine is also recommended for other reasons should receive a dose of the vaccine simultaneously with the immunoglobulin (IG) treatment.
6. The efficacy of immunoglobulin (IG) or vaccine when administered more than two weeks after exposure has not been established.

C. Immunoglobulin Dose and Administration

1. The index case must be serologically confirmed (i.e., positive for anti-HAV IgM).
2. Immunoglobulin (IG) at a 0.02 ml/kg single intramuscular (IM) dose should be administered as soon as possible, but no later than two weeks after the last exposure.

D. Isolation Precautions

1. Practice standard precautions at all times.
2. Follow strict hand washing before and after entering the patient's room.
3. Place patients with HAV-related diarrhea on standard and contact precautions for the duration of the illness.

TITLE/DESCRIPTION:	INDEX NUMBER
VIRAL HEMMORRHAGIC FEVER (VHF) MANAGEMENT	ICM - IV - 05

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	All GCC Countries	GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

The purpose of this policy is to provide clear guidelines for managing patients with suspected and confirmed Viral Hemorrhagic Fever (VHF) in healthcare facilities whether sporadic or in an outbreak situation. This policy can be applied to the following agents that cause syndromes of VHF: Lassa, Marburg, Ebola, Congo-Crimean and Rift Valley hemorrhagic fever viruses.

REFERENCE

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 29: Isolation precautions. In APIC Text of infection control and epidemiology (4th ed.).
2. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 96: Viral hemorrhagic fevers. In APIC Text of infection control and epidemiology (4th ed.).
3. Center for Disease Prevention and Control (CDC), Infection of patients with suspected viral hemorrhagic fever. MMWR 44(25);475-479, June 1995.
4. Center for Disease Prevention and Control (CDC), Infection prevention and control recommen dations for hospitalized patients with known or suspected ebola hemorrhagic fever in US hospitals, July 2014.
5. Center for Disease Prevention and Control (CDC), Interim guidance for specimen collection, transport, testing, and submission for patients with Ebola Virus Disease. August 2014.
6. Center for Disease Prevention and Control (CDC), Interim guidance on personal protective equipment to be used by healthcare workers during management of patients with Ebola Virus Disease in U.S Hospitals, including procedures for putting on (donning) and removing (doffing). October 2014.
7. Center for Disease Prevention and Control (CDC), Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus. August 2014
8. Center for Disease Prevention and Control (CDC), Interim Guidance for Safe Handling of Human Remains of Ebola Patients in U.S Hospitals and Mortuaries. October 2014.

COMMENTS

Viral Hemorrhagic Fevers (VHFs) refer to a group of illnesses that are caused by several distinct families of viruses. In general, the term "viral hemorrhagic fever" is used to describe a severe multisystem syndrome (multisystem in that multiple organ systems in the body are affected).
Characteristically, the overall vascular system is damaged and the body's ability to regulate itself is impaired. These symptoms are often accompanied by hemorrhage (bleeding). While some types of hemorrhagic fever viruses can cause relatively mild illnesses, many of these viruses cause severe, life-threatening disease.
Transmission can occur though the following:

1. During unprotected contact with a VHF patient or a deceased VHF patient.
2. During unprotected contact with VHF infectious body fluids, blood, secretions or excretions.
3. Contact with contaminated medical equipment and supplies.
4. As a result of an accidental needle stick exposure to infectious body fluids.
5. Laboratory processing of body fluids of infected VHF patients without appropriate personal protective equipment PPE or standard biosafety precautions.

Thus, early recognition and prompt effective use of infection control measures must be implemented to prevent and contain the spread of the disease. The following recommendations apply to patients who within the three weeks period before the onset of the disease have either:

1. Traveled within the specific local area of a country where VHF has recently occurred;
2. Had direct contact with the blood, body fluids, secretions, and excretions of a person or animal with VHF; and
3. Worked in the laboratory or animal facility that handles hemorrhagic fever viruses.

PROCEDURE

A. Notification

The following notifications are mandatory if suspected cases of VHF are admitted:

1. The Admitting Consultant notifies the:
   a. Infectious Disease Consultant
   b. Nurse-in-Charge of Emergency Department and ward where patient is to be admitted.
2. The Infectious Disease Consultant notifies the:
   a. Chairman of the Infection Control Committee who will then notify the:
      i. Medical Director
      ii. Executive on duty
      iii. Hospital Director
      iv. Infection Control Coordinator or Infection Preventionist (IP)
      v. Laboratory and Radiology Departments
      vi. Family Medicine Department / Employee Health Clinic
3. The Nurse-in-Charge in ER notifies the:
   a. Nursing Supervisor or Duty Administrator
   b. ICU Head Nurse or Nurse-in-Charge if to be admitted to the ICU
4. The Nursing Supervisor notifies the:
   a. Director of Nursing
   b. Nurse Manager to consult on staffing
   c. Materials department for equipment for strict isolation.
5. Infection Control Coordinator or IP notifies the:
   a. Housekeeping Manager
   b. Central Sterilization Services Department (CSSD) Manager
   c. Ministry of Health
   d. Utilities and Maintenance for ventilation modification in patient rooms, if needed.

B. Identifying an Isolation Unit

Each institution should select an area, which can be utilized as an Isolation Unit.

The Isolation Unit should be able to function as a self-contained closed unit with no movement of patients in or out. This should be done with the guidance of the IP&C Department who will coordinate in:

1. Admitting the patient to an isolation room in an appropriate ward if a designated Isolation Unit is not yet available.
2. Admitting seriously ill unstable patients preferably with a private bathroom in a single room in the ICU with an anteroom.
3. Identifying an isolation ward in anticipation of more cases.
4. Activating the pathogen specific Infectious Disease Epidemic Plan (IDEP).

C. Emergency Department

Although most exposed or ill persons undergoing evaluation and transportation are in the early stages of disease and would not be expected to have symptoms that increase the likelihood of

contact with infectious body fluids (e.g., vomiting, diarrhea, or hemorrhage); for extra precaution, droplet and contact precaution must be implemented, in addition to standard precautions.
If a patient has any of the above symptoms consult Infection Preventionist in addition to:

1. Containing and isolating any body fluid exposure or splashes by securing surroundings and minimizing movement.
2. Admitting patient to the nearest single room or isolation room, if available.

D. Isolation Precautions

Use VHF isolation precautions for suspected and confirmed cases of VHF.

1. Patient placement
   a. Place patient in standard, contact, and droplet precautions.
   b. Require a single room with a private bathroom and with a separate entry and exit door. May admit in a negative pressure, if available.
   c. Post the appropriate isolation signage outside the anteroom.
2. Access to the room
   a. A VHF certified trained security officer will be assigned at the entrance of the isolation room to ensure that access to the room is restricted.
   b. Only VHF certified personnel will be allowed to care for such patients. Certificates will be issued after training by the IP&C Department.
   c. A log book shall be available to document all persons entering the patient's room. Refer to **Appendix 1-IV-05**: Monitoring log.
   d. VHF certified trained observers will be stationed at the entry to monitor proper donning of PPE and at the exit to monitor and assist in proper doffing of PPE.
3. Principles of Personal Protective Equipment (PPE)
   a. All healthcare workers assigned to care for VHF patient must have received training and must have demonstrated competency in performing all VHF-related infection control practices, especially, on the proper donning and doffing of PPE.
   b. Trained observers should be certified by IP&C to monitor the proper PPE use and adherence to protocols for donning and doffing PPE, and to guide HCWs at each point of use based on a competency checklist (Refer to **Appendix 2-IV-05:** HCWs Competency Checklist for Managing VHF/EVD patients and **Appendix 3-IV-05:** Trained observer's performance checklist for donning and doffing PPE).
   c. IP&C shall conduct training for observers and healthcare workers for proficiency and competency in the use of PPE.
   d. In the PPE removal area, provide supplies for disinfection of PPE and for performing hand hygiene; and, a place for sitting that can be easily cleaned and disinfected where HCWs can remove boot covers.
   e. HCWs must remove personal clothing and items and change into surgical scrubs and dedicated washable footwear prior to donning the required PPE for VHF.
   f. HCWs will use the recommended VHF PPE including: double gloves, fluid resistant or impermeable gown, eye protection (goggles or face shield), and a facemask. Detailed PPE donning and doffing are available and updated regularly on the intranet.
   g. Additional PPE will be required in certain situations (e.g., copious amount of blood, other body fluids, vomit, or feces present in the environment), including but not limited to double gloving, disposable shoe covers, head cover, leg coverings, and a coverall, if available.
4. Aerosol generating procedures (AGPs)
   Avoid aerosol-generating procedures (AGPs). If performing these procedures, PPE should include respiratory protection N95 or high filtering face piece respirator and the procedure should be performed in an airborne infection isolation room.

a. Although there are limited data available to definitely define a list of AGPs, those included are Bilevel Positive Airway Pressure (BIPAP), bronchoscopy, sputum induction, intubation and extubation, and open suctioning of airways. Disposable filtering facepiece respirators are preferred.
b. Limit the number of healthcare workers present during the procedure to those essential only to patient care.
c. Conduct environmental surface cleaning using a hospital approved disinfectant after performing AGPs.

5. Patient care equipment
   a. Utilize isolation cart to keep all routine supplies for the patient outside of the isolatio room.
   b. Patient care equipment should be dedicated (preferably disposable) to be used for provision of care.
   c. All non-dedicated and non-disposable medical equipment used for patient care should be cleaned and disinfected according to manufacturer's instruction and hospital policy.
   d. Contact CSSD regarding reusable instruments for cleaning and sterilization.
6. Patient care consideration
   a. Practice Standard, Contact, and Droplet precautions with all patients to prevent unprotected contact and exposure with blood and body fluids. HCWs should perform hand hygiene frequently.
   b. Limit the use of needles and sharps. Phlebotomy procedures and laboratory testing should be limited to the minimum necessary for essential diagnostic evaluation and medical care.
   c. All needles and sharps should be handled with extreme care and disposed in puncture-proof, sealed containers.
   d. Based on the Ministry of Health (MOH) circulars at the time, patient transfer to a designated VHF facility will be identified in the IDEP and updated on the website by the IP&C Department.
7. Restriction of visitors:
   a. Visitors are restricted entry to the patient's room.
   b. Exceptions may be considered on a case-to-case basis with due notification from IP&C Department.
8. Duration of Infection Control Precautions
   a. Duration of infection control precautions should be determined on a case-to-case basis in conjunction with IP&C Department.

E. Nursing / Medical

1. Prior to caring for a VHF patient, healthcare workers must be trained and certified, a necessary process which requires training and skills assessment necessary for the safety of the HCWs.
2. In addition, HCWs must complete the healthcare worker's preparedness checklist and competency checklists for specific VHF viral disease provided by IP&C, which are available on the intranet.
3. Staff caring for patient with suspected or confirmed VHF SHOULD NOT have other assignments.
4. Staff working in that unit will be monitored by IP&C Department twice daily for development of symptoms.
5. HCWS are accountable for their continuous update by visiting the intranet frequently.

F. Monitoring and Management of Potentially Exposed Personnel

1. HCWs with percutaneous or mucocutaneous exposures to blood, body fluids, secretions, or excretions from a patient with suspected VHF should:

a. Stop working and immediately wash the affected skin surfaces with soap and water.
b. Irrigate mucous membrane (e.g., conjunctiva) with copious amount of water or eyewash solution.
c. Contact Surveillance Clinic/Employee Health Clinic/Supervisor for assessment and access to post-exposure management services for all appropriate pathogens.
d. HCWs who develop sudden onset of fever, intense weakness or muscle pains, vomiting, diarrhea, or any signs of hemorrhage after an unprotected exposure to a patient with VHF should:
   i. Not report to work or should immediately stop working if on duty.
   ii. Notify supervisor who will then notify IP&C Department to arrange for prompt medical evaluation.

2. Asymptomatic HCWs who had unprotected exposure to a patient with VHF should:
   a. Receive medical evaluation promptly and follow-up care including fever monitoring twice daily for the incubation period of the specific VHF virus (e.g., 21 days) after the last known exposure.
   b. A protocol shall be developed to ensure twice daily contact with exposed personnel to discuss potential symptoms and document fever checks.
   c. Comply with work exclusion/home isolation for the duration of the incubation period of the specific VHF virus or until they are deemed no longer infectious to others.
   d. All HCWs in contact with the pathogen of VHF will be tested by an acute and convalescent sera for exposure if the test is available.
   e. IP&C Department will authorize approval of leave based on the specific pathogen.

G. Handling/Transporting Specimens within the Hospital

It is expected that all laboratory technicians and other healthcare personnel collecting or handling specimens follow CDC Interim Guidelines on specimen collection, transport, and submission for patients with Ebola. These include wearing the appropriate PPEs as described above and adhering to engineered safeguards for all specimens, regardless of whether they are identified as infectious.

1. In compliance with the recommended guidelines, specimens should be placed in a durable, leak proof secondary container for transport within a facility.
2. To reduce the risk of breakage or leaks, DO NOT use any pneumatic tube system for transporting suspect VHF specimens. All specimens must be hand delivered to the Pathology Department.
3. Specimens collected for VHF testing should be packaged and shipped without attempting to open the collection tube specimens, in accordance with existing hospital and Ministry of Health guidelines.
4. Specimen for shipment should be packaged following the basic triple packaging system which consist of a primary receptacle (a sealable specimen bag) wrapped with absorbent material; secondary receptacle (water tight, leak proof); and, an outer shipping package.
5. HCWs should limit unnecessary testing.

H. Environmental Cleaning

1. Use a hospital-approved disinfectant to disinfect hard non-porous surfaces such as Hypochlo rites (household bleach) by housekeeping and nursing staff. A solution of 1:10 for blood spills or 1:100 bleach solution for general cleaning can be used. Or use a Hypochlorite based disinfectant tablets and follow instructions as per manufacturer's recommendation for contact time and dilution.
2. Housekeepers performing environmental cleaning should wear the recommended PPE described above and consider using additional barriers such as shoe covers and leg coverings if needed.
3. Face protection should be worn when performing task such as liquid waste disposal that can generate splashes.

4. Use designated cleaning equipment (e.g., mop, buckets, etc.) and disposable cleaning materials in the isolation room/unit.
5. Clean and disinfect equipment and furniture upon patient discharge and keep the room vacantfor 24 hours.
6. All materials used for the patients and disposable items worn by staff should be double-bagged in airtight yellow bags for immediate transport outside the unit for incineration.
7. Treat sewage and other fluids with household bleach (i.e., for 5 minutes or longer) before flushing.
8. Use only yellow bags in the isolation room.

I. Laundry

1. Soiled linens are considered contaminated.
2. Soiled linens should be placed in leak-proof bags at the site of use and transported directly to the decontamination area for incineration.
3. Linen used by patients suspected and confirmed with VHF should not be mixed with other linens.

J. Management of the Deceased

1. VHF pathogens are classified as Category II pathogens.
2. Follow the proper identification of body, transportation, & documentation in the morgue.
3. The nurse-in-charge or dedicated personnel will inform and notify the Morgue Supervisor of the deceased infection status. This should be documented in writing on the identification tag. Refer to **ICM- VIII-10** Mortuary Care.
4. Preparation of the body
   a. At the site, the body should be wrapped in a plastic shroud, in a way that prevents contamination of the outside of the shroud. Change PPE if they are heavily contaminated with blood or body fluids.
   b. Leave any intravenous lines or endotracheal tubes that maybe present.
   c. Avoid washing the body.
   d. Place immediately in a leak-proof body bag not less than 150 um thick and zip close. Apply surface disinfection on the outer surface of the bag. The bagged bag should be placed in another leak-proof body bag not less than 150 um thick and zip closed. Perform surface disinfection on the outer surface of the body bag prior to transfer for immediate burial.
   e. Place proper label on the outer surface of the body bag where it is clearly visible.
5. Disposition of Remains:
   a. Immediate burial in a a hermetically sealed casket is highly recommended.

K. Referrals

Note: If concerns of suspected VHF are raised on a referred patient these steps should be followed:

1. Comply with standard precautions at all times.
2. Implement the measures described above in the wearing of the appropriate PPE in handling the patient.
3. Prepare the patient for transport in an appropriate manner as to avoid contamination of HCW and surrounding with body fluids (e.g., mask and diapers).
4. Manage any soiled equipment or linen appropriately as detailed above.
5. Inform the receiving ward by phone regarding the clinical condition of the patient being transferred.
6. The MRP, nurse-in-charge, and registration clerk in the receiving hospital should be aware of the arrival of such patient/s in order to expedite and appropriately isolate the patient upon arrival.

Appendix 1-IV-05:
24-Hour Monitoring Log for Healthcare Workers

MRN: _____ Ward: _____
Date of Admission: _____ Date: _____ /00:01-23:59H

NAME	BADGE	SERVICE / PURPOSE	TIME IN	TIME OUT

Note: Please submit daily a copy of this monitoring log form to the Infection Prevention & Control Department.

Appendix 2-IV-05:
Healthcare Workers' Competency Checklist for Managing Viral Hemorrhagic Fever / Ebola Virus Disease Patients

Competency Statement
Prior to working with an EVD patient, HCWs need to be prepared and be able to describe and demonstrate the necessary knowledge and skills in taking care of an Ebola patient.

Performance Indicators		K	S	Comment
1. Able to describe the signs, symptoms, and risk factors of an EVD patients	1. Fever >100.4°F or 38.0 °C with headache, weakness, muscle pain, vomiting, diarrhea, abdominal pain or hemorrhage			
	2. History of travel to EVD outbreak countries within the last 21 days			
	3. History of contact with an EVD patient within the last 21 days			
2. Able to demonstrate the proper donning of PPE under the supervision of a Trained observer NB. HCW must remove personal clothing and items Change into surgical scrubs and wear dedicated washable shoes	1. **Inspect PPE** to ensure that it is in serviceable condition, and that all required PPEs are available with appropriate sizes.			
	2. **Perform hand hygiene.**			
	3. **Put on inner gloves**			
	4. **Put on Coverall or Jumpsuit. Do not cover your head at this point.** Ensure gown or coverall is large enough to allow unrestricted freedom of movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown or coverall.			
	5. **Put on boots or shoe covers.**			
	6. **Put on unsterile blue surgical gown.**			
	7. **Put on N95 respirator.** Complete a user seal check.			
	8. **Put on face shield/hood.** Put on face shield or hood over the N95 to provide additional protection to the front sides of the face. The hood should cover all of the hair and the ears, and ensure that it extends past the neck to the shoulders. Be sure that the hood completely covers the ears and the neck.			
	9. **Put on outer gloves.** Put on second pair of gloves (with extended cuffs. Ensure the cuffs are pulled over the sleeves of the gown or coverall/jumpsuit. a. Verify if the HCW is able to go though a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered. b. Disinfect the outer glove hands. Allow to dry prior to patient contact.			

Appendix 2-IV-05…con't.

Performance Indicators		K	S	Comment
3. Able to demonstrate the proper doffing of PPE following the recommended sequence	1. **Inspect the PPE** ensemble to assess for visible contamination, cuts, or tears. If visibly contaminated, then disinfect affected PPE using a hospital approved disinfectant.			
	2. **Disinfect the outer gloves.**			
	3. **Remove boots or shoe covers.** While sitting down, remove and discard boots or shoe covers.			
	4. **Disinfect and remove outer gloves.**			
	5. **Disinfect inner gloves.**			
	6. **Remove the face shield/hood:** Avoid touching the front surface of the hood.			
	7. **Disinfect inner gloves.**			
	8. **Remove the outer unsterile blue surgical gown.** The HCW can either untie fasteners or the trained observer can assist to unfasten the gown. Avoid contact with the scrubs or disposable garments with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown.			
	9. **Disinfect inner gloves.**			
	10. Remove coverall or jumpsuit. To remove the coverall, tilt head back to reach zipper or fasteners. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the overall.			
	11. **Disinfect gloves and remove.**			
	12. **Perform hand hygiene and don a new pair of gloves.**			
	13. **Remove N95 Respirator.** Remove N95 by tilting the head slightly forward, grasping first the bottom tie, then the top tie, remove without touching the front of the N95 then discard.			
	14. **Disinfect gloves.**			
	15. **Disinfect washable shoes.** Sitting on a new clean surface (e.g. second clean chair) use a hospital approved disinfectant wipe to clean out every external surface of the washable shoes.			
	16. **Disinfect and remove gloves. Perform hand hygiene.**			
	17. **Perform the final inspection** for any indication of contamination of the surgical scrubs or disposable garments. If contamination is identified inform immediately the ICP or their designee before exiting PPE removal area.			
	18. **Scrubs:** HCW can leave PPE removal area with their dedicated washable footwear and surgical scrubs.			

Appendix 2-IV-05…con't.

Performance Indicators		K	S	Comment
4. Familiar with the important components of the VHF Management ICM-IV-05 policy such as on the following:	1. Patient placement			
	2. Isolation Precaution			
	3. Staff allocation			
	4. Patient care equipment			
	5. Patient care consideration (limit use of sharps)			
	6. Specimen handling and transport			
	7. Environmental cleaning			
	8. Management of laundry			
	9. Management of the deceased			
	10. Access to the room and restriction of visitors			
5. Know who to notify in the hospital in case of an unprotected exposure				
6. Aware that he should stop working and wash affected parts with soap and water in case of an unprotected exposure to blood and body fluids of a suspected Ebola patient. He should notify IPC and his Manager.				
7. Know how to monitor himself for any development of symptoms after taking care of an EVD patient				
8. Familiar with the Intranet Homepage "NGHA Alert & response to Local/Global outbreak (MersCoV-Ebola)" link.				
9. Have completed the Ministry of National Guard-Health affairs (MNG-HA) HCWs preparedness checklist for EVD.				

Legends: *K-Knowledge S-Skills* *Use NA where appropriate*

Preceptor's Name:_____ Badge No.:_____
Health Worker's Signature:_____ Professional
Category:_____

Appendix 2-IV-05…con't.

Trained Observer's Performance Checklist for Donning & Doffing Personal Protective Equipment (PPE)

Donning PPE

Required PPE for trained observers to be used during the doffing of PPEs: Fluid resistant gown: full face shield: 1 pair of nitrile gloves with extended cuffs and fluid-resistant impermeable shoe covers. Trained observers will monitor and document successful donning and doffing of PPE. If the trained observer assist in the PPE doffing, then trained observer should disinfect outer-gloved hands with a hospital approved disinfectant wipes or *ABHR immediately after contact with the HCW's PPE.
Required PPE for the HCWs: Fluid resistant coverall: outer gown: full face shield or hood, 2 pairs of nitrile gloves with extended cuffs, fluid-resistant boots or shoe covers and N95 or PAPR
Note: HCWs must remove personal clothing and personal items. Change into surgical scrubs and wear dedicated washable shoes.

Steps	Performance Checklist	C	N/A	Comment
1	**Engage Trained Observer:** The donning process is conducted under the guidance and supervision of a trained observer who confirms visually that all PPE is serviceable and has been donned successfully. The trained observer will use a written checklist to confirm each step in donning PPE and can assist with ensuring and verifying the integrity of the ensemble. No exposed skin or hair of the healthcare worker should be visible at the conclusion of the donning process.			
2	**Remove Personal Clothing and Items:** Change into surgical scrubs (or disposable garments) and dedicated washable (plastic or rubber) footwear in a suitable, clean area. No personal item (e.g. jewelry, watches, cell phones, pagers, pens) should be brought into patient room.			
3	**Inspect PPE prior to Donning**: Visually inspect the PPE ensemble to be worn to ensure it is in serviceable condition, all required PPE and supplies are available, and that the sizes selected are correct for the healthcare worker. The trained observer reviews the donning sequence with the healthcare worker before the healthcare worker begins and reads it to the healthcare worker in a step-by-step fashion.			
4	**Perform Hand Hygiene**: with ABHR. When using ABHR, allow hands to dry before moving to next step.			
5	**Put on Inner Gloves**: Put on first pair of gloves.			
6	**Put on Coverall or Jumpsuit and do not cover your head at this point**: Ensure gown or coverall is large enough to allow unrestricted freedom of movement. Ensure cuffs of inner gloves are tucked under the sleeve of the gown or coverall.			
7	**Put on boots or shoe covers.**			
8	**Put on unsterile blue Surgical gown.**			
9	**Put on N95 Respirator**: complete a user seal check. **Put on head cover of the coverall or jumpsuit.**			
10	**Put on Face shield/Hood**: the surgical hood should cover all of the hair and the ears, and ensure that it extends past the neck to the shoulders. Be certain that hood completely covers the ears and neck.			
11	**Put on Outer Gloves**: Put on second pair of gloves(with extended cuffs). Ensure the cuffs are pulled over the sleeves of the gown or coverall..			
12	**Verify**: After completing the donning process, the integrity of the ensemble is verified by the trained observer. The healthcare worker should be comfortable and able to extend the arms, bend at the waist and go through a range of motions to ensure there is sufficient range of movement while all areas of the body remain covered.			
13	**Disinfect Outer Gloves**: Allow to dry prior to contact with patient.			

Legend: *C: Complete* *N/A: Not Applicable*

Appendix 3-IV-05....cont.

Doffing PPE				
Steps	**Performance Checklist**	**C**	**N/A**	**Comment**
1	**Inspect:** Inspect the PPE to assess for visible contamination, cuts, or tears before starting to remove. If any PPE is visibly contaminated, then disinfect using a hospital approved disinfectant wipe.			
2	**Disinfect outer Gloves.**			
3	**Remove the boots or shoe covers.**			
4	**Disinfect and remove the outer gloves.**			
5	**Disinfect inner gloves.**			
6	**Remove the Face shield/Hood:** Avoid touching the front surface of the hood.			
7	**Disinfect inner gloves.**			
8	**Remove the Outer unsterile Surgical gown:** The HCW can either untie fasteners or the trained observer can assist to unfasten the gown. Avoid contact with the scrubs or disposable garments with outer surface of gown during removal. Pull gown away from the body, rolling inside out and touching only the inside of the gown.			
9	**Disinfect inner gloves.**			
10	**Remove Coverall/Jumpsuit** To remove coverall, tilt head back to reach the zipper or fasteners. Unzip or unfasten coverall completely before rolling down and turning inside out. Avoid contact of scrubs with outer surface of coverall during removal, touching only the inside of the coverall.			
11	**Disinfect Gloves and Remove.**			
12	**Perform HH and don a new pair of gloves.**			
13	**Remove N95 Respirator:** by tilting the head slightly forward, grasping first the bottom tie, then the top tie, remove without touching the front of the N95 then discard.			
14	**Disinfect gloves.**			
15	**Disinfect Washable Shoes:** Sitting on a new clean surface (e.g. second clean chair, clean side of a bench) use a hospital approved disinfectant wipe to wipe down every external surface of the washable shoes.			
16	**Disinfect and Remove gloves.**			
17	**Perform Hand Hygiene.**			
18	**Inspect:** Perform a final inspection of healthcare worker for any indication of contamination of the surgical scrubs or disposable garments. If contamination is identified, immediately inform infection preventionist or occupational safety and health coordinator or their designee before exiting PPE removal area.			
19	**Scrubs:** Healthcare worker can leave PPE removal area wearing dedicated washable footwear and surgical scrubs or disposable garments.			

**ABHR –alcohol based hand rub/gel*

Name of HCW:_____ BN:_____ Signature:_____
Trained Observer:_____ BN:_____ Signature:_____
HCW Professional Category:_____ Date:_____

TITLE/DESCRIPTION:	INDEX NUMBER
PEDICULOSIS / SCABIES MANAGEMENT	ICM - IV - 06

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	All GCC Countries	GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

To provide guidelines on the management of patients admitted with pediculosis or scabies.

REFERENCE

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 29: Isolation precautions. In APIC Text of infection control and epidemiology (4th ed.).
2. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 99: Parasites. In APIC Text of infection control and epidemiology (4th ed.).

COMMENTS

1. Pediculosis is defined as any type of louse infestation. There are three types:
   a. Pediculosis capitis – head lice
      i. Head lice infestation of the hair, eyebrows and eyelashes is caused by Pediculus humanus capitis.
      ii. Transmission is facilitated by direct contact with an infested person and/or objects used by them. Also, may be spread by indirect contact with the personal belongings of infested persons, especially shared clothing and headgear.
   b. Pediculosis pubis – crab lice
      i. Infestation is usually of the pubic area but in heavy cases may also be present in facial hair and eyelashes. Infestation of any type may result in severe itching, fever and excoriation of the scalp or body.
   c. Pediculosis corporis – body lice
      i. Infestation by body lice, Pediculus humanus corporis, is rarely found on the body, rather on the clothing of an infested person, especially along seams of the clothing's inner surfaces.
      ii. Transmission is facilitated by direct contact with an infested person and/or objects used by them. Also, may be spread by indirect contact with the personal belongings of infested persons, especially shared clothing and headgear.

2. Scabies is a parasitic disease described as an infestation of the skin by the mite Sarcoptes scabiei.
   a. Clinical manifestations of the disease include visible papules, vesicles, or tiny linear burrows that contain the mites and their eggs.
   b. Lesions are prominent at the following sites: finger webs, flexor surfaces of the wrists and elbows, anterior axillary folds, thighs, external genitalia (men), nipples and abdomen (women). Affected areas also include the head, neck, palms and soles.
   c. Transmission is primarily through direct, prolonged, skin-to-skin contact with an infected person, and it can occur even in the presence of high levels of personal hygiene.

3. Norwegian scabies syndrome is highly contagious.

PROCEDURE

If a patient is suspected to be infested with any form of pediculosis/scabies, examination of the patient will be conducted without delay by medical/nursing staff. The medical staff must verify the infestation before treatment can be initiated.

A. Nursing

1. Isolate the patient in a single room with Contact Isolation precautions when suspicion or confirmation of scabies or lice infestation.
2. Obtain physician's confirmation and prescription for appropriate treatment.
3. Notify Infection Preventionist (IP) of patient's diagnosis.
4. Give patient clear instructions on proper use of the medication. Patient should be supervised to ensure correct application.
5. If assisting patient with treatment:
   a. Put on the necessary (gown, gloves, and cap) protective personal equipment (PPE).
   b. Prepare the patient for treatment.
   c. Apply scabicide/pedulocide as per instructions (treatment details vary based upon the drug used).
   d. Encourage the patient to leave the medication on for the time required for the specific product used.

   NB: Pediculocides will not destroy all nits. Following application of the pediculocide, manual removal of the nits with a fine tooth comb, is crucial to preventing recurrence and pesticide resistance.
   e. Give the patient (or encourage patient to take) a cleansing bath or shower to ensure proper rinsing of the scabicide.
6. Clothing and linen used by the infected patient from 3 days prior and 24 hours after treatment must be placed in a hot water soluble bag or double bagged, tied securely, labeled and sent to laundry.
7. All clothing and linen must be changed after the room has been thoroughly cleaned. See housekeeping instructions below.
8. All PPEs must be discarded in black bag and tied securely, immediately after use.
9. Continue isolation for 24 hours after effective treatment.

B. Physician

1. A physician should assess the patient to determine the effectiveness of the treatment.
2. A single, proper application of treatment is curative in most cases and eliminates the risk of transmission.

C. Housekeeping

Concurrent and terminal disinfection with hospital-approved disinfectant is recommended.

D. Laundry

Isolate the laundry bag for special handling by the laundry facility.

1. Linen and clothing should be placed in water-soluble laundry bags or labeled and transported to the laundry department.
2. Linen and clothing should be washed at a temperature of 160°F (71°C) for at least 5 to 10 minutes.

E. Household contact

Consult with the Public Health Nurse Coordinator in Infection Prevention and Control department for follow-up.

TITLE/DESCRIPTION:	INDEX NUMBER
RABIES EXPOSURE MANAGEMENT	**ICM - IV - 07**

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	**All GCC Countries**	**GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)**

DEFINITION

To provide guidelines on pre-exposure prophylaxis for employees who work in the animal facility as well as guidelines on management of patients with exposure to possibly rabid animals.

REFERENCES

1. Recommendations of the Immunization Practice Advisory Committee (ACIP). Human Rabies Prevention, United States (1999). MMWR, 8 January 1999:48;RR-1.
2. Redbook (2012). Report of the Committee on Infectious Diseases. American Academy of Pediatrics (28th ed.).
3. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 89: Rabies. In APIC Text of infection control and epidemiology (4th ed.).
4. Rupprecht C.E., Briggs D., Brown C.M., et.al. Use of a Reduced (4-Dose) Vaccine Schedule for Postexposure Prophylaxis to Prevent Human Rabies: Recommendations of the Advisory Committee on Immunization Practices. March 19, 2010 / 59(RR02);1-9
   Downloaded from https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5902a1.htm.

COMMENTS

1. The likelihood of rabies infection varies with the nature and extent of exposure, which may fall into one of two categories: bite and non-bite. Human-to-human transmission is rare. The virus is introduced into bite wounds, open cuts in the skin, or onto mucous membranes. Once it enters the central nervous system of the human, it causes encephalomyelitis, which is 100% fatal.
2. Types of exposure include:
   a. Bite
      i. Any penetration of the skin by teeth constitutes a bite exposure. All bites, regardless of location, represent a potential risk for rabies transmission. Bites by some animals such as bats can inflict minor injury and thus be undetected.
   b. Non-bite
      i. Non-bite exposures from terrestrial animals cause rabies and rarely require post-exposure prophylaxis.
      ii. The non-bite exposure of highest risk appears to be among persons exposed to large amounts of aerosolized rabies virus.
      iii. The contamination of open wounds, abrasions, mucous membranes, or (theoretically) scratches with saliva or other potentially infectious material (such as neural tissue) from a rabid animal also constitutes a non-bite exposure.
      iv. Other contact, by itself, such as petting a rabid animal and contact with blood, urine, or feces (e.g., guano) of a rabid animal does not constitute an exposure and is NOT an indication for prophylaxis.
3. Human-to-human transmission
   a. Human-to-human transmission has occurred among eight recipients of transplanted corneas. Stringent guidelines for acceptance of donor corneas have been implemented to reduce the risk.

PROCEDURE

A. Pre-exposure Prophylaxis

Pre-exposure prophylaxis is administered for several reasons:

1. It simplifies therapy by eliminating the need for rabies immunoglobulin (RIG).
2. It decreases the number of doses of vaccine needed post exposure.
3. It may protect persons whose post-exposure therapy is delayed.
4. It may provide protection to persons at risk for unapparent exposure to rabies.

Pre-exposure vaccination should be offered to:

1. Persons in high-risk groups, such as veterinarians, animal handlers, and certain laborator workers.
2. Persons whose activities bring them into frequent contact with the rabies virus or potentially rabid bats, raccoons, skunks, cats, dogs, or other species at risk for having rabies.
3. International travelers to areas where dog rabies is enzootic and immediate access to appropriate medical care, including biologics, may be limited.
4. Pre-exposure vaccine and dosage (see **Table 1-IV-07**).

Table 1-IV-07: Rabies pre-exposure prophylaxis schedule

Type of Vaccination	Route	Regimen
Primary cell culture rabies vaccine	Intramuscular (IM)	1 ml on days 0, 7,21 or 28
Booster	Intramuscular	1 ml every 2 years

NB: 1. For those travelers receiving anti-malaria prophylaxis, only the IM route should be used.
2. Dosage may vary depending on the manufacturer; see package insert.

B. Serological testing follow pre-exposure prophylaxis

Routine serologic testing to confirm seroconversion is not necessary except for persons suspected of being immunosuppressed or being in a high risk group.

C. Post exposure therapy for previously vaccinated persons

Previously vaccinated persons should receive rabies vaccine as a booster. RIG is unnecessary and should not be administered to these persons.

D. Post-exposure prophylaxis

The type of animal, circumstances of the biting incident and vaccination status of the animal affect the need for post-exposure prophylaxis

a. An unprovoked attack by an animal is more likely than a provoked attack to indicate that the animal is rabid.
b. Bites inflicted on a person attempting to feed or handle an apparently healthy animal should generally be regarded as provoked.
c. A currently vaccinated dog, cat, or ferret is unlikely to become infected with rabies.
d. A healthy domestic dog, cat, or ferret that bites a person may be confined and observed for 10 days. A veterinarian should evaluate any illness during confinement or before release. If signs suggestive of rabies develop during the observation period, the animal will be euthanized and its head removed and shipped under refrigeration for examination by the laboratory at the Regional Central Laboratory. Refer to **ICM–IV-08** Rabies Specimen Acquisition Handling and Shipment to Ministry of Agriculture Laboratory.

e. If the biting animal is stray or unwanted, it should either be observed for 10 days or be euthanized immediately and submitted for rabies examination (Table 2-IV-07).
f. For handling of the animal head, refer to ICM–IV-08 Rabies Specimen Acquisition Handling and Shipment to Ministry of Agriculture Laboratory.

Table 2-IV-07: Rabies post-exposure prophylaxis guide

Animal Type	Evaluation and Disposition of Animal	Post-Exposure Prophylaxis Recommendations
Dogs, cats, and ferrets	Healthy and available for a 10-day observation Rabid or suspected to be rabid Unknown (e.g., escaped)	Persons should not begin prophylaxis unless animal develops clinical signs of rabies.* Immediately vaccinate. Consult Infectious Diseases for advice.
Skunks, raccoons, foxes and most other carnivores, and bats	Regarded as rabid unless animal proven negative by laboratory tests**	Consider immediate vaccination.
Livestock, small rodents, lagomorphs (rabbits and hares), large rodents (woodchucks and beavers), and other mammals	Consider individually	Consult Infectious Diseases for advice. Bites of squirrels, hamsters, guinea pigs, gerbils, chipmunks, rats, mice, other small rodents, rabbits, and hares almost never require anti-rabies post-exposure prophylaxis.
Camels, sheep, and other livestock	Consider individually	Consult Infectious Diseases for advice.

* During the 10-day observation period, begin post-exposure prophylaxis at the first sign of rabies in a dog, cat, or ferret that has bitten someone. If the animal exhibits clinical signs of rabies, it should be euthanized immediately and tested.
** The animal should be euthanized and tested as soon as possible. Holding for observation is not recommended. Discontinue vaccine if immunofluoresence test results of the animal are negative.

E. Wound Management and Vaccination

1. Wound management

a. Wash all bite wounds and scratches immediately and thoroughly with soap, water and a virucidal agent such as povidone-iodine solution.
b. Persons who have been bitten by animals suspected or proven to be rabid should begin post-exposure prophylaxis immediately (See Table 3). Incubation periods of greater than one year have been reported in humans.
c. When a documented or likely exposure has occurred, post-exposure prophylaxis is indicated REGARDLESS of the length of delay of the clinical signs of rabies.
d. Tetanus prophylaxis and measures to control bacterial infection should be administered as indicated. The decision to suture large wounds is case dependent.
e. Post-exposure anti-rabies vaccination should always include the administration of both passive antibodies and vaccine. THE EXCEPTION to this rule is persons who have previously received complete vaccination regimens (pre-exposure and post-exposure) with a cell culture vaccine or persons who have been vaccinated with other types of vaccines and have documented rabies antibody titers; these persons should receive the VACCINE ONLY (See Table 3-IV-07).

Table 3-IV-07: Rabies post-exposure prophylaxis schedule

Vaccination Status	Treatment	Regimen*
Not previously vaccinated	Wound cleansing	All post-exposure treatment should begin with immediate, thorough cleansing of all wounds with soap and water. If available, a virucidal agent such as a povidone-iodine solution should be used to irrigate the wound(s).
	RIG*	Administer 20 IU/kg body weight. If anatomically feasible, the *full dose* should be infiltrated around the wound(s) and any remaining volume should be administered IM at an anatomical site distant from the vaccination site. Also, RIG should not be administered in the same syringe as the vaccine. Because RIG may partially suppress the active production of antibodies, no more than the recommended dose should be given.
	Rabies vaccine	Administer 1.0 ml IM in the deltoid area on each days 0, 3, 7, and 14. For persons with immunosuppression, rabies PEP should be administered using all 5 doses of vaccine on days 0,3,7,14, and 28. Day 0 is the day of dose 1 of vaccine is administered.
Previously vaccinated**	Wound cleansing	All post-exposure treatment should begin with immediate, thorough cleansing of all wounds with soap and water. If available, a virucidal agent such as a povidone-iodine solution should be used to irrigate the wounds.
	RIG	RIG should not be administered.
	vaccine	HDCV or PCECV 1.0 ml, IM (deltoid) 1 each days 0 and 3. Deltoid area is the only acceptable site of vaccination for adults and older children. For younger children, the outer aspect of the thigh may be used. Vaccine should never be administered in the gluteal area. Day 0 is the day of dose 1 of vaccine is administered.

* These regimens are applicable for all age groups, including children.

** Any person with a history of pre-exposure vaccination with HDCV, RVA, or PCECV; prior post-exposure prophylaxis with HDCV, RVA, or PCE CV; or previous vaccination with any other type of rabies vaccine and a documented history of antibody response to the prior vaccination.

2. Management of adverse reactions
   a. Once initiated, rabies prophylaxis should not be interrupted or discontinued because oflocal or mild systemic adverse reactions to the rabies vaccine.
   b. When a person with a history of hypersensitivity to the rabies vaccine must be revaccinated, antihistamines can be administered. Epinephrine should be readily available to counteract anaphylactic reactions, and the person should be observed carefully immediately after vaccination.

3. Precautions and contraindications
   a. Immunosuppression:
      i. Corticosteroids, other immunosuppressive agents, anti-malarials, and immunosuppressive illnesses can interfere with the development of active immunity after vaccination. For such patients, pre-exposure prophylaxis should be administered with the awareness that the immune response might be inadequate.
      ii. Persons who are immunosuppressed due to disease or medication should postpone pre-exposure vaccination and consider avoiding activities for which rabies pre-exposure prophylaxis is indicated. When this is not possible, persons who are immunosuppressed and at risk for rabies should be vaccinated by the IM route, and their antibody titers should be checked. Failure to seroconvert after the third dose should be managed in consultation with an Infectious Diseases Consultant.

iii. Immunosuppressive agents should not be administered during post-exposure therapy unless they are essential for the treatment of other conditions.

b. Pregnancy:
Pregnancy is NOT considered a contraindication to post-exposure prophylaxis if the risk of rabies is substantial.

4. Investigation of contacts
Search for other persons who may have been exposed to the infected animal.

5. Isolation of hospitalized patients
Standard precautions are recommended for the duration of illness.

6. Confirmed rabies in patients is a reportable disease. Notify Infection Control.

7. Refer to **ICM–I-05** Reporting Communicable Diseases to the Ministry of Health.

TITLE/DESCRIPTION:
RABIES SPECIMEN ACQUISITION, HANDLING AND SHIPMENT TO MINISTRY OF AGRICULTURE LABORATORY

INDEX NUMBER
ICM - IV - 08

EFFECTIVE DATE:
01/01/2009
01/01/2013
01/01/2018

APPLIES TO:
All GCC Countries

ISSUING AUTHORITY:
GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

To provide guidelines on handling animal specimens involved in suspected rabies cases. These guidelines include instructions on acquiring, properly preserving, and shipping the specimens to the Ministry of Agriculture Laboratory for testing.

REFERENCE

1. Mandell G, Bennett J, and Dolin R. (2000). Rabies virus. Principles and practice of infectious disease. (5th ed., Chapter 51) Churchill Livingstone.
2. Ministry of Agriculture and Water in Saudi Arabia.

COMMENT

Use standard precautions (wear gloves, aprons/gowns and masks) when handling the rabid/ suspected animal/animal parts/animal specimens. Animal specimens should be double bagged for handling using the infectious waste bag.

PROCEDURE

A. Emergency Department
Notifies the Infection Prevention and Control Department

B. Infection Prevention and Control (IP&C) Department
Contacts and coordinates with Environmental Services

C. Pest Control

1. Captures and impounds the suspected rabid animal.
2. Decapitates the animal.
3. The animal's brain needs to be secured for testing by the Ministry of Agriculture Laboratory. The specimen should be packed and kept frozen in an appropriate insulated container.
4. The animal's body is to be double-bagged at all times. Take animal remains to the incinerator and make sure they are disposed of. Also, dispose of all PPE (gowns, gloves, mask, etc.).
5. Ship the specimen via overnight/same-day courier to the Ministry of Agriculture Laboratory.
6. Disinfect the area of the decapitation.

Note: Check the working hours of your country's Ministry of Agriculture Laboratory

TITLE/DESCRIPTION:	INDEX NUMBER
MANAGEMENT OF PATIENTS WITH SUSPECTED SEVERE ACUTE RESPIRATORY SYNDROME (SARS)	**ICM - IV - 09**

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	**All GCC Countries**	**GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)**

DEFINITION

To describe the institution's policy for the management of patients with suspected Severe Acute Respiratory Syndrome (SARS).

REFERENCES

1. CDC (April 2003). Interim laboratory biosafety guidelines for handling and processing specimens associated with SARS.
2. Wenzel, R.P. and Edmond, M.B. Managing SARS amidst uncertainty. New Engl J Med. 2003;348:1947-48.
3. Specific country policies from the Ministry of Health (MOH).
4. World Health Organization (WHO) guidelines for the global surveillance of SARS. Updated recommendations October 2004. http://www.who.int/csr/resources/publications/WHO_CDS_CSR_ARO_2004_1/en/

COMMENTS

1. Severe Acute Respiratory Syndrome (SARS) is an emerging infectious disease associated with a novel corona virus that has caused worldwide outbreaks since 1st of November 2002.
2. The incubation period is 2 to 7 days and may extend to 10 days.
3. Case definition of SARS
   a. Suspected case
      i. A person presenting with a history of: high fever (>38°C) AND coughing or breathing difficulty AND one or more of the following exposures during the 10 days prior to onset of symptoms:
         - close contact with a person who is a suspected or probable SARS case
         - history of travel to an area with recent local transmission of SARS
         - residing in an area with recent local transmission of SARS
      ii. A person with an unexplained acute respiratory illness resulting in death during a SARS outbreak, but on whom no autopsy has been performed AND one or more of the following exposures during the 10 days prior to onset of symptoms:
         - close contact with a person who is a suspected or probable case of SARS
         - history of travel to an area with recent local transmission of SARS
         - residing in an area with recent local transmission of SARS
   b. Probable case
      i. A suspected case with radiographic evidence of infiltrates consistent with pneumonia or respiratory distress syndrome (RDS) on chest X-ray (CXR).
      ii. A suspected case with autopsy findings consistent with the pathology of RDS without an identifiable cause.
   c. Confirmed case
      i. A suspected case of SARS that is positive for SARS coronavirus by one or more assays. See Use of laboratory methods for SARS diagnosis.
4. Exclusion criteria
   A case should be excluded if an alternative diagnosis can fully explain the illness.

5. Reclassification of cases
   a. As SARS is currently a diagnosis of exclusion, the status of a reported case may changeover time.
   b. A case initially classified as suspected or probable, but for whom an alternative diagnosis can fully explain the illness, should be discarded.
   c. A suspected case that, after investigation, fulfills the probable case definition should be reclassified as "probable."
   d. A suspected case with a normal CXR should be treated as such and monitored for 7 days. Those cases for whom recovery is inadequate should be re-evaluated by CXR.
   e. Those suspected cases for whom recovery is adequate but whose illness cannot be fully explained by an alternative diagnosis should remain as "suspected."
   f. A suspect case who dies, but on whom no autopsy is conducted, should remain classified as "suspected." However, if this case is identified as being part of a transmission chain of SARS, the case should be reclassified as "probable."
   g. If an autopsy is conducted and no pathological evidence of RDS is found, the case should be "discarded."

PROCEDURE

A. Medical/Nurses

1. Notify the Infection Prevention and Control (IP&C) Department on weekdays and the designated personnel on call after office hours and on weekends.
2. Notify the Director of IP&C or designee in all cases.
3. Isolation of patients:
   a. Place the patient in a negative pressure room in airborne isolation precautions.
   b. Wear gloves, gown, N95 masks, and eye protection to enter the room and for contact with patient or any of his/her body fluids.
   c. Wash hands carefully after removing gloves and other protective gear.
   d. Limit the number of healthcare workers caring for the patient.
   e. Limit the number of visitors.
4. Transport of suspected SARS patients:
   a. Use the minimum number of Emergency Medical Staff (EMS). Wear appropriate PPE (the patient should wear a surgical mask; EMS should wear N95 masks).
   b. Notify the receiving facility prior to transfer of suspected SARS patients to facilitate preparation for appropriate Infection Control procedures and facilities.

B. Laboratory Testing

1. Send only critical samples for investigation. Discuss with the Infectious Diseases Consultants on call for any required tests needed.
2. Hand deliver all samples to the appropriate laboratory section.
3. Arrange for sample transport to specific healthcare laboratory and for subsequent transfer of other samples to be tested by the Ministry of Health.
4. Follow the guidelines for "Handling of Possible or Suspected SARS Specimens" in the microbiology laboratory.
5. Infectious Diseases Consultants in coordination with IP&C will review laboratory results and assess disposition of the patient.

TITLE/DESCRIPTION:	INDEX NUMBER
RAPID MRSA SURVEILLANCE	**ICM - IV - 10**

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2009 01/01/2013 01/01/2018	**All GCC Countries**	**GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)**

DEFINITION

This policy describes the procedure for rapid evaluation of initial Methicillin-Resistant Staphylococcus aureus (MRSA) screening (surveillance) of patients for admission, to identify those patients requiring isolation, thus reducing or preventing the spread of MRSA to HCWs, patients and visitors.

REFERENCES

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 93: Staphylococcus. In APIC Text of infection control and epidemiology (4th ed.)
2. APIC Guide to the elimination of methicillin-resistant staphylococcus aureus (MRSA) transmission in hospital settings, March 2007.

COMMENTS

1. MRSA refers to strains of Staphylococcus aureus that are resistant to oxacillin and other ß-lactam antibiotics.
2. Concerns about MRSA are related to the potential for nosocomial transmission and the limited number of antibiotics available to treat infections caused by this organism.
3. Initiate empiric contact isolation precautions during the screening process.
4. STANDARD PRECAUTIONS MUST BE OBSERVED FOR ALL PATIENT CARE.
5. Patients admitted from the Emergency Department who meet the criteria for MRSA screening can be transferred to a ward in contact isolation.

PROCEDURE

A. Patients who Require MRSA Surveillance Screening may include:

1. Patients admitted to the intensive care unit.
2. Patients transferred from other hospitals or patients treated at another hospital/clinic within the past six months.
3. Exposed roommates of new MRSA-positive patients.
4. Patients undergoing liver or cardiac surgery, organ transplant, continuous ambulatory peritoneal dialysis, hemodialysis patients for creation of access, or orthopedic prosthesis placement surgery.

B. Nasal Swab for Rapid Screening

1. Use the red-top tube with double-tip dry culture swab for anterior nares.
2. Write "MRSA SURVEILLANCE SAMPLE" on requisition.
3. All swabs should be transported as soon as possible to the Microbiology Lab.

C. Microbiology Laboratory

1. The Microbiology Lab will run tests on specimen in batches.
2. All swabs will be tested using the rapid test system, and results will be reported in the following manner:
   a. All negative results will be released in 24 hours
   b. Positive results will be phoned to the Ward and the Infection Control Department

D. Management of MRSA-Positive Patients

Nursing – Refer to **ICM-IV-02** Methicillin-Resistant Staphylococcus Aureus Management.

TITLE/DESCRIPTION:	INDEX NUMBER
CLOSTRIDIUM DIFFICILE INFECTION MANAGEMENT	ICM - IV - 11

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2018	All GCC Countries	GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

The purpose of this policy is to provide staff with guidance to reduce transmission of clostridium difficile within healthcare facilities of the Ministry of Health.

REFERENCES

1. Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA). 2010. Clinical practice guidelines for Clostridium difficile infection in adults.
2. Guide to preventing Clostridium difficile Infections. APIC implementation guide.
3. Strategies to Prevent Clostridium difficile Infections in Acute Care Settings in Acute Care Hospital. 2014 Update.

COMMENT

Clostridium difficile infection (CDI) is caused by an anaerobic spore-forming gram positive bacillus. It accounts for 15% to 30% of all episodes of antibiotic-associated diarrhea, and is the most common cause of healthcare-associated infectious diarrhea.

These infections vary from mild gastrointestinal symptoms to severe life-threatening conditions. The organism is easily transmitted in healthcare environments and has the potential to cause outbreaks in hospitals, especially long-term care facilities. It has a significant burden on healthcare facilities.

Major risk factors contributing to CDI are: antimicrobial use; especially exposure to clindamycin, extended-spectrum cephalosporins, or fluoroquinolones, usage of proton pump inhibitors and long hospitalization.

TERMINOLOGIES

Bristol chart	A medical aid designed to classify the feces into seven groups
CDI	Clostridium difficile infection
Diarrhea	3 per 24 hours episodes of stool classified as types 5, 6, or 7 as per Bristol stool chart that takes the shape of the container
Spore	A dormant non-productive body formed by certain bacteria in response to adverse environmental conditions.
Toxin	A chemical compound produced by some pathogenic bacteria Highly poisonous to other living organisms.
Resolved	When patient has no diarrhea or passes well-formed stool for at least 48 hours.
IP&C	Infection Prevention and Control
IP	Infection Preventionist

PROCEDURE

A. Managing Patients with Suspected CDI Disease

1. Patients with diarrhea or other symptoms (e.g., nausea + vomiting, fever, abdominal pain/tenderness) suspected to be CDI should be assessed in a timely manner. A stool specimen should be taken for laboratory testing for Clostridium difficile.
2. Initiate empiric contact isolation precautions during the screening process.
3. Clinical assessment of symptomatic patients, and when necessary, promptly initiate antimicrobial therapy according to clinical practice guidelines.
4. Asymptomatic patients should not be tested for Clostridium difficile.
5. Routine environmental testing for Clostridium difficile is not useful and should not be done.

B. Managing Patients with Confirmed CDI disease

1. Patients determined to be CDI positive based on clinical suspicion plus a positive stool by PCR or Enzyme Immunoassay (EIA) toxins for Clostridium difficile.
2. Positive results will be reported by the microbiology laboratory to both the designated ward and infection control department.
3. Symptomatic positive patients should be placed on contact isolation precautions in a single room.
4. If no single room is available:
    a. Place sign on the cubicle or curtains of the patient's bed;
    b. Ensure easy access to PPEs and hand washing station;
    c. Practice strict standard precautions between interactions with patients in the same room;
    d. Transfer to a single room; and
    e. Patient should not share bathroom with other patients and a specific commode should be designated for the patient.
5. Cohort non-critical items such as stethoscopes and pressure cuffs along with the patient. If not, follow infection control guidelines in cleaning and disinfecting non-critical items between patients. Using disposable items is preferred.
6. Soap and water rather than alcohol-based hand rub should be used for the physical and mechanical removal of spores.
7. Hand hygiene should be performed using soap and water at the point of care and at a designated staff hand washing sink.
8. Make an accurate documentation of the patient's bowel movements following the description on the Bristol stool chart (see **Appendix A-IV-11**).
9. Limit the patient's activity outside his/her room.
10. Notify receiving department/wards (e.g., Radiology, Endoscopy, etc.) of the patient's isolation status when the patient must be transported for treatment/test. Refer to **ICM-III-09**: Transporting Patients on Isolation Precautions.
11. Ensure concurrent and terminal cleaning of the isolation room as per housekeeping procedure (using 1:10 hypochlorite solution)
12. Handle/discard contaminated items as per standard precautions. Refer to **ICM -II-03**: Standard Precautions.
13. Cohorting of nursing staff providing direct patient care is recommended.

C. Discontinuation of Contact Isolation

1. Discontinuation of isolation precautions for CDI patient must occur in consultation with the IP and Most Responsible Physician (MRP).

2. Contact isolation precautions can be discontinued when patient passes well-formed stool or no diarrhea for at least 48 hours.
3. Obtaining a stool test for Clostridium difficile is not recommended for discontinuation of isolation. Specificity and sensitivity of the test is not optimal and unreliable.

D. Environmental Cleaning

1. All horizontal and frequently touched surfaces in the room, cubicle, and designated bed spaces of the patient suspected or confirmed to have CDI should be cleaned at least twice daily; and when soiled, pay particular attention to "highly touched" areas/items (e.g., bathroom, bathing facilities, toilet/commode/bedpan, light switches, calling bell, door handle, etc.).
2. Measures should be taken to limit contamination of cleaning and disinfecting solutions by changing cleaning cloths and mop heads frequently.
3. Room and bed spaces should be cleaned and decontaminated by using 1:10 hypochlorite solution agent or other sporicidal hospital approved disinfectant.
4. When a suspected or confirmed CDI patient is moved to another room or discharged; at the onset of acute diarrhea, conduct terminal cleaning of the room, cubicle or designated bed spaces and bathroom; discarding the toilet bowl brush; and, obtaining optimal cleaning and disinfection of non-critical items.
5. Contact precautions should be maintained until terminal cleaning of the room, cubicle or designated bed space is completed.

E. Handling Linen, Dishes, and Cutlery

1. For dishes and cutlery, disposable items are preferred.
2. No special precautions are required for linen; routine practices are sufficient and include the following:
   a. Soiled linen should be handled in the same way for all patients without regard to their infectious status;
   b. Soiled linen should be placed in a no-touch receptacle at the point of use;
   c. Soiled linen should be handled with minimum agitation to avoid contamination of air, surfaces, and persons; and
   d. Heavily soiled linen should be rolled or folded to contain the heaviest soil in the center of the bundle.

F. Handling Deceased Body

Routine practices, properly and consistently applied, should be used in addition to contact precaution for handling deceased bodies; preparing them for autopsy; or transferring them to mortuary services.

DUTIES AND RESPONSIBILITIES

All staff has the responsibility to ensure that the principles outlined in this document are universally applied. This policy applies to all members and staff who are involved in any aspect of the development and use of hospital procedures.

A. Division Manager, Clinical Director, and Senior Nurse

1. Each division management team has the responsibility to actively encourage compliance on the policy by all staff.
2. Ensure that all healthcare staff undertake and complete infection control training and annual in-service updates.

3. Ensure that all suspected and confirmed cases of CDI are reported promptly to the infection control team.
4. Ensure adherence with contact precaution compliance and best practice, especially hand hygiene and surface cleaning and disinfection.

B. IP&C Team

1. Provide advice on appropriate placement of patients with suspected or confirmed CDI.
2. Ensure adherence with contact precaution compliance.
3. Ensure proper environmental cleaning and disinfection.
4. Produce timely feedback to designated services.
5. Identify CDI increased incidence, cluster or outbreak, and perform an investigation with proper reporting and action plan.
6. Support infection control leadership on the antibiotic stewardship program.
7. Coordinate the implementation of this policy and review contents regularly.

C. Microbiology Staff

1. Ensure that testing for CDI is available 7 days a week.
2. Ensure that all Clostridium difficile laboratory results are communicated promptly to clinical teams.

D. Clinical Ward Staff

1. Report any suspected or confirmed case of CDI.
2. Adhere to contact isolation precautions and prompt hand hygiene practice.
3. Responsible in educating patients of reason for isolation and the precautions to take. Visitors should also be informed of the precautions they need to take.
4. Ensure receiving areas and escort teams are informed of CDI diagnosis prior to transferring to the ward.
5. Dedicate equipment for patients use as possible.
6. Follow infection control manual for cleaning and disinfection of non-critical items.
7. Ensure cleaning and disinfection of rooms and equipment as per isolation policy is clearly communicated with housekeeping services.
8. Ensure proper documentation of stool and diarrhea using Bristol chart.

E. Housekeeping and Environmental Services

1. Ensure prompt cleaning and disinfection of rooms using sodium hypochlorite solution or hospital approved sporicidal surface disinfectant.
2. Adhere to housekeeping policy and procedure for cleaning and disinfecting.
3. Comply with hand hygiene best practices.

F. Medical Staff

1. Identify high risk patients who will likely develop CDI and direct conduct of laboratory tests when needed.
2. Inform the patient about their diagnosis and ensure correct antibiotic therapy is in place.
3. Follow CDI treatment guidelines.

APPENDIX A–IV-11

Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely Liquid

TITLE/DESCRIPTION:
CARBAPENEM-RESISTANT ENTEROBACTERIACEAE (CRE) MANAGEMENT AND PATIENT TRANSFER

INDEX NUMBER
ICM - IV - 12

EFFECTIVE DATE:
01/01/2018

APPLIES TO:
All GCC Countries

ISSUING AUTHORITY:
GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

Invasive infection with CREs has been associated with high mortality (i.e., bloodstream infection). This policy outlines the guidelines on screening, isolation and transfer of patients with CRE.

REFERENCES

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 75: Enterobactericeacea. In APIC Text of infection control and epidemiology (4th ed.).

2. HICPAC/CDC Guidelines for isolation precautions: preventing transmission of infectious agents in healthcare setting, 2007.

3. Center for Diseases Control and Prevention (CDC). CRE Toolkit-Guidance for Control of carbapen-em-resistant Enterobacteriaceae (CRE). November 2015 update.

COMMENTS

1. The emergence of CREs is a public health concern, carbapenemase enzymes have broad spectrum hydrolyzing activity, thereby rendering all penicillins, cephalosporins, and carbapenems ineffective. They are often located on mobile genetic elements with other resistant genes which results in multidrug or "pan"-resistant members with limited or no therapeutic options.

2. CRE are Enterobacteriaceae that are:

    a. Resistant to any carbapanem antimicrobial (i.e. minimum inhibitory concentrations of ≥ 4 mcg /ml for doripenem, meropenem, or imipenem OR ≥ 2mcg/ml for ertapenem).
    b. Documented to produce carbapenemase ; in addition for bacteria that have intrinsic imipenem nonsusceptibility (i.e., Morganella morganii, Proteus spp., Providencia spp.), resistance to carbapenems other than imipenem is required.

3. Strict adherence to evidence-based "best-practices" (hand hygiene, barrier protection, proper maintenance of equipment and the environment, healthcare personnel and consumer education) are required to prevent and control these infections.

4. Education on the prevention of transmission of Multi-Drug-Resistant Organisms (MDROs) including CRE for all healthcare workers (HCWs) and the proper use of Contact Precautions is a fundamental part of infection prevention practice in managing CREs.

PROCEDURE

A. Screening for CREs

1. Screen all patients who are:
   a. Known to be previously CRE positive for the last 6 months or more.
   b. Roommates exposed to CRE-positive patients who shared the room for more than 48 hours.
   c. Consider point prevalence screening of a particular unit if more than one CRE patient is identified.

2. Active surveillance screening in high risk areas (i.e., ICUs).Sites to screen:
   a. Peri-anal swabs or rectal.
   b. Skin sites, wounds or urine (if a urinary catheter is present).

B. Notification of the CRE

1. The microbiology laboratory will notify the ward and IP&C Department of the identified CRE positive patient.

2. Patients previously discharged as CRE are flagged in the MDRO documentation by IPs.

3. Only IPs can deflag/remove the MDRO alerts in the electronic medical system. Refer to **ICM-IV-01** Multidrug Resistant Organisms (MDRO) Management.

C. Management of CRE-Positive Patients

1. Initiate contact precautions in addition to standard precautions.

2. Patients must be in a single room or can be cohorted with another patient with the same organism.

3. CRE-positive patients who are in multi-bed rooms can be managed temporarily while waiting to be transferred to a single room or an appropriate cohort.
   a. Place a sign on the cubicle or curtain of the patient's bed.
   b. Ensure easy access to PPEs and alcohol-based hand rub
   c. Practice strict Standard Precautions between interactions with patients in the room.

4. Refer to **ICM-III-03** Contact Precautions and **ICM-II-03** Standard Precautions.

5. Notify receiving departments/wards (e.g. Radiology, Endoscopy, Clinics, OR) of the patient's solation status when the patient must be transported for treatment/tests. Refer to **ICM-III-09** Transporting Patients on Isolation Precautions.

6. Ensure concurrent and terminal cleaning of the isolation room and equipment as per house keeping procedure.

7. Handle/discard contaminated items as per Standard Precautions. Refer to **ICM-II-03** Standard Precautions.

D. Medical

1. Request infectious disease consultation as needed.

2. Discharge patient from the hospital once his/her medical condition allows.

E. Use of Devices

The use of devices (i.e., central venous catheters, endotracheal tubes, and urinary catheters) put patients at risk for device-associated infections. Minimizing device use is an important part of the effort to decrease the incidence of these infections.

1. Minimize the use of devices in all healthcare settings to decrease the prevalence of MDROs, including CRE.
2. Review regularly the use of devices if they are still required and discontinue promptly when no longer needed.

F. Clearance/Discontinuation of Isolation

Discontinue isolation of MDRO-positive patient after consultation with the IPs.

G. Outbreak Management

Management of outbreaks will be coordinated by the IP and will require the cooperation of medical, nursing, laboratory and other departments.

H. Environmental Cleaning

1. Perform daily cleaning in areas in close proximity of the patient (i.e., bedrails, patient tray) to decrease the burden of organisms.

2. Clean and disinfect surfaces around the sink regularly and do not store medical equipment in close proximity to sinks.

3. Perform terminal cleaning based on **ICM-X-07** Housekeeping.

I. Linen

Keep linen hamper in the isolation area.

J. Referring Hospital

1. Notify the receiving facility of the patient's CRE status so that appropriate infection prevention measures can be promptly implemented upon the patient's arrival.

2. EMS and other healthcare providers involved in transferring such as patient need to be made aware of the status of the patient and advise on proper PPE as well as disinfection of the ambulance as deemed necessary. Refer to **ICM-VIII-13** Emergency Medical Services/ Ambulance Services.

K. Receiving Hospital

Identify patients previously identified as colonized or infected with CRE at re-admission so that appropriate infection precautions can be maintained.

TITLE/DESCRIPTION:	INDEX NUMBER
MANAGEMENT OF PATIENTS IN ISOLATION PRECAUTIONS IN THE OPERATING ROOM	**ICM - IV - 13**

EFFECTIVE DATE:	APPLIES TO:	ISSUING AUTHORITY:
01/01/2018	All GCC Countries	GULF COOPERATION COUNCIL – CENTRE FOR INFECTION CONTROL (GCC-CIC)

DEFINITION

To describe the precautionary measures needed for staff to follow when dealing with isolated patients who will undergo surgical procedures in the operating room.

REFERENCE

1. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 29: Isolation precautions. In APIC Text of infection control and epidemiology (4th ed.).
2. Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2014). Chapter 68: Surgical Services. In APIC Text of infection control and epidemiology (4th ed.).
3. HICPAC /CDC Guidelines for Isolation precautions: Preventing Transmission of Infectious Agents in Healthcare Setting 2007.
4. The Sydney Children's Hospitals Network. Operating Suite Guidelines, Infection Control, Standard and Additional Precautions for the Operating Suite - CHW. Practice Guideline No: 0/C/09:8063-01:01. http://www.schn.health.nsw.gov.au_policies/pdf/2009-8063.pdf.

COMMENTS

Communication and screening systems should be in place so that Operating Room (OR) personnel are aware of or informed about the infectious status of the patient before arriving in the OR.

PROCEDURE

A. Precautions for Managing Patients on Airborne Precautions in the Operating Room

1. In patients with active MTB, only emergency procedures are recommended
2. Elective procedures on patients who have MTB should be postponed until the patient is no longer infectious.
3. If possible, perform procedures in operating rooms that have anterooms. For operating rooms without anterooms, the doors to the operating room should be closed, and traffic into and out of the room should be made to perform the procedure at a time when other patients are not present in theoperative suite and when the minimum number of personnel are present (e.g., at the end of the day).
4. OR personnel should wear the N95 masks throughout the procedure.
5. Let the patient recover in the operating room, if a negative pressure room is not available, or alternatively, in a private room with a portable HEPA filter. Refer to **ICM-V-04** Management of Patients with Infectious Mycobacterium Tuberculosis in the Operating Room.
6. Follow cleaning and disinfection process of the room and equipment based on **ICM-X-07** Housekeeping.
7. Refer to **ICM-III-09** Transporting Patients on Isolation Precautions.

B. Precautions for managing patients on Droplet Precautions

1. Elective procedures on patients who are under droplet precaution preferably to be delayed until no longer infectious or schedule the procedure at the end of the day.
2. Initiate and maintain droplet precautions when there is suspected or confirmed diagnosis of an infectious disease that is transmitted by the droplet route.
3. Wear a surgical mask within 3 feet of the patient. Refer to **ICM-III-04** Droplet Isolation Precautions for managing patients needing droplet precaution.
4. Clean and disinfect the operating room and equipment used after the surgical procedure based on **ICM-X-07** Housekeeping.
5. Utilize the operating room for the next procedure after the recommended housekeeping cleaning process has been completed.
6. Refer to **ICM-III-09** Transporting Patients on Isolation Precautions back to the wards.

C. Precautions for managing patients on Contact Precautions

1. Schedule elective procedure preferably at the end of the day.
2. Place patient in isolation in a single room in the recovery. Refer to **ICM-III-03** Contact Isolation Precautions.
3. Clean and disinfect the operating room and equipment used after the surgical procedure based on **ICM-X-07** Housekeeping.
4. Refer to **ICM-III-09** Transporting Patients on Isolation Precautions.