



State of Kuwait

Ministry of Health

Infection Control Directorate

**Title: Infection Control Guidelines within Healthcare Settings When Caring for Suspected Cases, Probable Cases, and Confirmed Cases for Nipah Virus Infection (NiV) including Encephalitis**

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<b>Applies to:</b>	<b>All healthcare settings in Kuwait (Governmental and Private Sectors)</b>

**Approved  
by:**

Name	Signature
<b>Head of Committee of Infection Control Policies</b>	
<b>Director of Infection Control Directorate</b>	

**Authorized by:**

Name	Signature
<b>Under Secretary of Ministry of Health</b>	

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## **1. Introduction**

Nipah virus (NiV) is an emerging zoonotic virus (a virus transmitted to humans from animals). Nipah virus can be transmitted to humans from animals (bats, pigs), and can also be transmitted directly from human-to-human. In infected people, Nipah virus causes a range of illnesses from asymptomatic (subclinical) infection to acute respiratory illness and fatal encephalitis. High case fatality rate and person-to-person transmission has made Nipah a highly dangerous pathogen.

Most human infections resulted from direct contact with sick pigs or their contaminated tissues. Transmission is thought to have occurred via respiratory droplets, contact with throat or nasal secretions from the pigs, or contact with the tissue of a sick animal. But during the recent outbreaks, Nipah virus spread directly from human-to-human through close contact with people's secretions and excretions. transmission of the virus was also reported within a health-care setting, where 75% of cases occurred among hospital staff or visitors.

## **2. Target group**

This guidance applies to all healthcare workers (HCWs) in all healthcare settings in Kuwait.

HCWs refer to all persons working in healthcare settings whose activities place them for a risk for transmission of infections.

HCWs include but are not limited to physicians, nurses, therapists, technicians, emergency medical services personnel, pharmacists, laboratory personnel, autopsy personnel, health-care students and persons not directly involve patient care but with potential exposure to infectious agents that can be transmitted between patients and health care providers ( housekeeping, laundry security, maintenance and volunteers).

### **3. Scope**

This guidance gives advisory infection control guidelines and recommendations for healthcare settings when caring for suspected cases, probable cases, and confirmed cases for Nipah virus infection including encephalitis.

In Kuwait, our goal is not to prevent transmission of the virus from bat to human but rather from Human to Human:

- Patient to health care workers
- Patient to other care givers/ close contact
- Patient to patient with other disease(s)
- Through objects used by patient

### **4. Procedures**

**Standard, contact and droplet precautions should be applied at all time.**

#### **4.1. Triage**

Implement policies and practices that can be used to minimize exposure before arrival, upon arrival, and throughout the duration of the visit to the healthcare setting. Measures include screening and triage of symptomatic patients and implementation of standard, contact and droplet precautions with emphasis on hand hygiene, respiratory hygiene, cough etiquette and proper use of personnel protective equipment (PPE).

- Instruct patients and persons accompanying them to inform HCWs upon arrival if they have symptoms of any respiratory infection (e.g., fever, cough, shortness of breath) and evidence of acute brain dysfunction (altered mental status, convulsion, neurological deficits) to take appropriate preventive actions (e.g., wear a facemask upon entry, follow triage procedure, adhere to respiratory hygiene, cough etiquette, hand hygiene)

- Facilities should consider setting up triage stations that facilitate rapid screening of patients for symptoms of Nipah Virus Infection (NiV) and separation from other patients.
- Provide surgical masks to patients with signs and symptoms of respiratory infection.
- Provide supplies to perform hand hygiene to all patients upon arrival to facility (e.g., at entrances of facility, waiting rooms, at patient check-in) and throughout the entire duration of the visit to the healthcare setting.
- Provide space and encourage persons with symptoms of respiratory infections to sit at least (1 meter) away from each other. If available, facilities may wish to place these patients in a separate area while waiting for care.

## **4.2. Notification**

All treating physicians should notify infection control department and preventive medicine department for any patient with suspected, probable, and confirmed cases for infection with Nipah virus Infection (NiV).

## **4.3. Infection Control Precautions**

**Standard, contact and droplet precautions.**

### **4.3.1. Patient Placement**

- Place a patient who may be infected with Nipah virus in a single isolation room.
- If not available put the patient in separate bed >1 meter from other patient.
- The room should undergo appropriate cleaning and surface disinfection before unprotected individuals are allowed to re-enter it.

### **4.3.2 Hand Hygiene**

- HCWs should apply “ The 5 moments for hand hygiene”:
  1. Before touching a patient,
  2. Before any clean or aseptic procedure,
  3. After body fluid exposure risk,
  4. after touching a patient,
  5. And after touching a patient’s surroundings.
- In addition to the above mentioned moments, HCWs should perform hand hygiene before putting on and upon removal of PPE, including gloves.
- Hand hygiene in healthcare settings can be performed by washing with soap and water or using alcohol-based handrubs. If hands are visibly soiled, use soap and water, not alcohol-based handrubs.

### **4.3.3 PPE**

#### **A. Gloves**

- Put on clean, non-sterile gloves upon entry into the patient room or care area.
- Change the gloves if they become torn or heavily contaminated.
- Wear gloves whenever history taking, physical examination, sample collection and other care giving to suspected, probable, confirmed Nipah cases.
- Remove and discard gloves immediately upon leaving the patient room or care area and clean hands.

#### **B. Gowns**

- Put on a clean gown upon entry into the patient room or area.
- Change the gown if it becomes soiled.
- Remove and discard the gown immediately upon leaving the patient room or care area.

## **C. Respiratory Protection**

- Adhere to Respiratory Hygiene/Cough Etiquette :
  - Covering the mouth and nose during coughing and sneezing,
  - Using tissues to contain respiratory secretions with prompt disposal into a no touch receptacle, Offering a surgical mask to persons who are coughing to decrease contamination of the surrounding environment, and
  - Turning the head away from others and maintaining spatial separation, ideally 1 meter, when coughing.
- Don a surgical mask upon entry into the patient room or cubicle or whenever history taking, physical examination, and other non-invasive care procedures giving to suspected, probable, confirmed Nipah cases.
- No recommendation for routinely wearing eye protection (e.g., goggle or face shield), in addition to a mask, for close contact with suspected, probable, confirmed Nipah cases.
- Don N95 respirator during specimen collection and other invasive procedures (such as nasopharyngeal suction, endotracheal intubation).

### **4.3.4 Patient Transport within Healthcare Facilities**

- Limit transport and movement of patients outside of the room to medically-necessary purposes.
- The nurse caring for the patient will transport the patient with the assistance of transportation personnel as needed.
- The patient must wear a surgical mask during transport throughout the institution (if tolerable).
- HCWs who are transporting the patient should wear gown, and gloves.

### **4.3.5 Patient Equipment**

- Use either disposable equipment or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers) in the isolation room.
- Dispose of single use equipment as clinical waste inside room.
- Reusable equipment should be avoided if possible. If used, disinfect according to manufacturer's instructions and the hospital disinfection policy.
- Ventilators should be protected with a high efficient filter and standard decontamination procedures followed.
- Closed system suction should be used.

### **4.3.6 Safe Injection**

The following recommendations are standard precautions that apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems:

- Use aseptic technique to avoid contamination of sterile injection equipment.
- Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed.
- Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use.
- Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set.
- Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use.
- If multidose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile.
- Do not keep multidose vials in the immediate patient treatment area and store in accordance with the manufacturer's recommendations; discard if sterility is

compromised or questionable.

- Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients.

#### **4.3.7 Aerosol Generating Procedures**

These include but not limited to procedures usually planned ahead of time, such as bronchoscopy, sputum induction, elective intubation and extubation, and autopsies; and some procedures that often occur in unplanned, emergent settings and can be life-saving, such as cardiopulmonary resuscitation, emergent intubation and open suctioning of airways.

- Only perform these procedures if they are medically necessary and cannot be postponed.
- Limit the number of HCWs present during the procedure to only those essential for patient care and support.
- Conduct the procedures in an airborne infection isolation room (AIIR) when feasible.
- HCWs should adhere to PPE:
  - Wear a particulate respirator (e.g. N95 or higher).
  - Wear eye protection (i.e. goggles or a face shield).
  - Wear a clean, non-sterile, long-sleeved gown.
  - Wear surgical gloves (sterile)
  - Wear an impermeable apron for some procedures with expected high fluid volumes that might penetrate the gown.
- Unprotected HCWs should not be allowed in a room where an aerosol-generating procedure has been conducted until sufficient time has elapsed to remove potentially infectious particles.
- Conduct a proper environmental surface cleaning after each procedure.

### **4.3.8 Specimen Handling**

During specimen collection, transportation, processing and storing always implement infection control precautions

During specimen collection wear N95 respirator, surgical gloves and gown.

### **4.3.9 Environmental Control**

#### **A. Cleaning the Patient-care Environment**

- Clean and disinfect patient's room by Sodium hypochlorite at least once daily, especially frequently touched surfaces (e.g. doors, windows, table top, etc)
- Meticulous daily cleaning of the patient care area is important in the prevention of cross infection.
- Patient care area should be cleaned after the rest of the ward area.
- Cleaners must wear PPE as indicated and reusable vinyl or rubber gloves for environmental cleaning, and they must be made aware of the need for additional precautions.

#### **B. Linen and Laundry**

- Place contaminated linen directly into a water soluble laundry bag in the isolation room or area with minimal manipulation or agitation, to avoid contamination of environment.
- Avoiding contact of one's body and personal clothing with the soiled items.
- Avoid sorting linen in patient-care areas.
- Wash and dry linen according to routine standards and procedures of the health-care facility.

### **C. Waste Management**

- a. Consider all waste from the patient-care area as infectious waste, treat and dispose according to the health-care facility's policy.
- b. Place all patient waste in biohazard labeled bags.
- c. Ensure that health-care workers use appropriate full PPE during handling of waste.
- d. Keep non-disposable PPEs and items in separate biohazard containers/ bags
- e. Keep sharp wastes in separate designated rigid container (box, bottle etc.)

#### **4.3.10 Dead Body**

Secretion and excretion from a deceased person are considered to be equally infectious like that of a living infected person. Adequate precautionary measures have to be taken during handling such dead body during transportation, washing and burial.

#### **A. Precautions in the isolation room/area**

- Apply standard, contact and droplet precautions.
- Recommended PPE for HCWs handling the dead bodies:
  - Disposable long-sleeved, cuffed gown, (waterproof, if the outside of body is visibly contaminated with body fluids, excretions or secretions). Alternatively, if no waterproof gown is available, a waterproof apron should be used in addition to the gown.
  - Surgical Mask.
  - Non-sterile, latex gloves should cover cuffs of gown.
- Perform hand hygiene after removal of PPE.
- The body should be fully sealed in an impermeable body bag before removal from the isolation room/area and before transfer to pathology department or the mortuary to avoid leakage of body fluid.
- Transfer to the mortuary should occur as soon as possible after death.
- The body, which is properly packed in the body bag, can be safely removed for

storage in the mortuary and sent for burial.

- If an autopsy is being considered, the body may be held under refrigeration in the mortuary and be conducted only when a safe environment can be provided for the autopsy.
- If the family of the patient wishes to view the body after removal from the isolation room or area, they may be allowed to do so with the application of standard, contact and droplet precautions.

## **B. Autopsy**

- Apply standard, contact and airborne precautions.
- Perform autopsies in an adequately ventilated room.
- Wear recommended PPE during autopsy:
  - scrub suits: tops and trousers, or equivalent garments
  - single-use, fluid-resistant, long-sleeved gowns
  - N95 mask.
  - face shield (preferably) or goggles
  - either autopsy gloves (cut-proof synthetic mesh gloves) or two pairs of non sterile gloves (disposable)
  - knee-high boots.
- Perform hand hygiene after removal of PPE.
- Minimize aerosols in the autopsy room as much as possible.
- Clean surfaces with water and detergent; wet the surface with sodium hypochlorite the solution and allow at least 10 minutes contact time; and rinse thoroughly.

## **C. Precaution to be followed by family members/community members**

- During transportation of dead body, avoid close contact with deceased's face, especially respiratory secretion

- Avoid close contact with deceased's face, especially respiratory secretion during grieving situation
- Cover face of yourself with a piece of cloth during washing/ritual bath of deceased body
- Wash hands with soap, if possible take bath with soap immediately after performing ritual bath of the dead body
- Wash reusable items (cloths, utensils, etc.) with soap/detergent and
- Dry mattress, quilt/comforter, pillow, etc. in sunlight for several consecutive days.

#### **4.4. Visitor Access and Movement within the Facility**

- Limit visitors for patients in isolation to persons who are necessary for the patient's emotional well-being and care.
- All visitors should follow respiratory hygiene and cough etiquette precautions.
- Visits to patients in isolation should be scheduled and controlled to allow for:
  - Facilities should provide instruction, before visitors enter patients' rooms, on hand hygiene, limiting surfaces touched, and use of PPE according to current facility policy while in the patient's room.
  - Facilities should consider tracking (e.g., log book) all visitors who enter patient rooms.
  - Visitors should not be present during aerosol-generating procedures.

#### **4.5 Monitoring of Ill and Exposed Healthcare Workers**

- Make a list of health care workers who provided care to Nipah patients or deceased patients until at least 14 days from last exposure.

## 5. References

- Prevention | Nipah Virus (NiV) | CDC  
<https://www.cdc.gov/vhf/nipah/prevention/index.html>
- Siegel J, Rhinehart E, Jackson M, PhD et. al (2007) Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. <http://www.cdc.gov/ncidod/dhgp/pdf/isolation2007.pdf>
- Rahman M, Hussain M. (2011) National Guideline for Management, Prevention and Control of Nipah Virus Infection including Encephalitis. World Health Organization, Bangladesh Country Office.
- WHO 2018. Key facts Nipah Virus.  
<http://www.who.int/news-room/fact-sheets/detail/nipah-virus>

## Appendices

### Appendix (1): Putting on personal protective equipment

**Putting on personal protective equipment (PPE)**

- 1. Wash Hands**
  - Perform proper Hand Hygiene.
- 2. GOWN**
  - Fully cover torso from neck to knees, arms to end of wrist, and wrap around the back.
  - Fasten in back at neck and waist.
- 3. MASK OR RESPIRATOR**
  - Secure ties or elastic band at middle of head and neck.
  - Fit flexible band to nasal bridge.
  - Fit snug to face and below chin.
  - Fit-check respirator.
- 4. GOGGLES/FACE SHIELD**
  - Put on the face and eyes and adjust to fit.
- 5. GLOVES**
  - Use non-sterile for isolation.
  - Select according to hand size.
  - Extend to cover wrist of isolation gown.

**SAFE WORK PRACTICES**

- Keep hands away from face.
- Limit surfaces touched.
- Work from clean to dirty.
- Change when torn or heavily contaminated.

## Appendix (2) Removing personal protective equipment

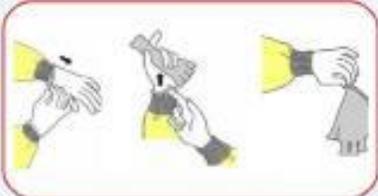
  
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### REMOVING PPE

1. PPE should be removed in an order that minimizes the potential for cross-contamination.
2. Except for respirator, remove PPE at doorway or in anteroom.
3. Remove respirator after leaving patient room and closing door.

**1- GLOVES**

- Outside of gloves are contaminated.
- Grasp outside of glove with opposite gloved hand; peel off.
- Hold removed glove in gloved hand.
- Slide fingers of ungloved hand under remaining glove at wrist.
- Peel glove off over first glove
- Discard gloves in waste container.



**2- GOGGLES/FACE SHIELD**

- Outside of goggles or face shield are contaminated!
- To remove, handle by "clean" head band or ear pieces
- Place in designated receptacle for reprocessing or in waste container.



**GOWN**

- Gown front and sleeves are contaminated!
- Unfasten neck, then waist ties.
- Remove gown using a peeling motion; pull gown from each shoulder toward the same hand.
- Gown will turn inside out.
- Hold removed gown away from body, roll into a bundle and discard into waste or linen receptacle.



**MASK OR RESPIRATOR**

- Front of mask/respirator is contaminated – DO NOT TOUCH!
- Grasp ONLY bottom then top ties/elastics and remove.
- Discard in waste container.



**HAND HYGIENE**

- Perform hand hygiene immediately after removing all PPE!

