

State of Kuwait
Ministry of Health
Infection Control Directorate



Title: Infection Control Guidelines within Healthcare Settings When Caring for Confirmed Cases, Probable Cases, and Cases Under Investigations for Infection with Novel Influenza A Viruses Associated with Severe Disease

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Applies to:	All healthcare settings in Kuwait (Governmental and Private Sectors)

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1. Background

This guidance provides recommendations for infection control in healthcare settings for patients who may be infected with a novel influenza A virus (i.e., an influenza A virus that has not recently been circulating among humans) associated with severe disease. This includes avian influenza A (H7N9), Asian (H5N1), and the newly detected avian influenza H5 viruses (H5N2), (H5N8), Asian (H7N8) and the new reassortant (H5N1).

Currently, novel influenza A viruses that have been associated with severe disease in humans include: highly pathogenic avian influenza A(H5N1) virus and avian influenza A(H7N9) virus.

Prior to any occurrence of human infection with Novel Influenza A virus H5N8 and provided that this virus to date is still essentially bird virus without any specific affinity for humans, People in direct contact with or handling birds or poultry and their carcasses (eg. hunters, farmers, etc...) might be at risk of infection. Healthcare workers (HCWs) should be alert for such low possibility and prepared.

The infection control guidance in this document applies to all above novel viruses.

2. Target group

This guidance applies to all healthcare workers 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 involved in patient care but with potential exposure to infectious agents that can be transmitted between patients and healthcare providers (housekeeping, laundry security, maintenance and volunteers).

3. Scope

This guidance gives advisory infection control guidelines and recommendations for

healthcare settings when caring for confirmed cases, probable cases, and cases under investigations for infection with novel influenza A viruses associated with severe disease.

4. Procedures

4.1. Triage

Implement policies and practices that can be used to minimize influenza 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 airborne precautions with emphasis on hand hygiene, respiratory hygiene, cough etiquette and proper use of personnel protective equipment (PPE)** (as detailed in the rest of the document).

4.1.1 Before Arrival to a Healthcare Setting:

- When scheduling appointments, instruct patients and persons who accompany them to inform HCWs upon arrival if they have symptoms of any respiratory infection (e.g., cough, runny nose, fever) and to take appropriate preventive actions (e.g., wear a facemask upon entry, follow triage procedure).

4.1.2 Upon Entry and During Visit to a Healthcare Setting:

Ensure all persons with symptoms of a respiratory infection adhere to respiratory hygiene, cough etiquette, hand hygiene, and triage procedures throughout the duration of the visit. These might include:

- Posting visual alerts (e.g., signs, posters) at the entrance and in strategic places (e.g., waiting areas, elevators, cafeterias) to provide patients and HCWs with instructions about respiratory hygiene and cough etiquette (*Appendix 1*). Instructions should include:

- a) How to use facemasks or tissues to cover nose and mouth when coughing or sneezing and to dispose of contaminated items in waste receptacles.
- b) How and when to perform hand hygiene.

The components of Respiratory Hygiene/Cough Etiquette are:

- 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.
 - These measures are targeted to all patients with symptoms of respiratory infection and their accompanying family members or friends beginning at the point of initial encounter with a healthcare setting (e.g., reception/triage in emergency departments, ambulatory clinics, healthcare provider offices)
- Implementing procedures during patient registration that facilitate adherence to appropriate precautions (e.g., at the time of patient check-in, inquire about presence of symptoms of a respiratory infection, and if present, provide instructions).
 - Provide facemasks 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 others. If available, facilities may wish to place these patients in a separate area while waiting for care.
 - Facilities should consider setting up triage stations that facilitate rapid screening of patients for symptoms of influenza and separation from other patients.

4.2. Notification

All treating physicians should notify infection control department and preventive medicine department for any patient with confirmed, probable, and cases under investigation for infection with Novel Influenza A.

4.3. Infection Control Precautions

Standard, contact and airborne precautions should be applied. (see signs of contact and airborne precautions in *Appendix 2,3*)

4.3.1. Patient Placement

- Place a patient who may be infected with a novel influenza A virus associated with severe disease in an Airborne Infection Isolation Room (AIIR). For room specifications see *Appendix 4*
- If an AIIR is not available, the patient should be transferred as soon as is feasible to a facility where an AIIR is available. Pending transfer, place a facemask on the patient and isolate him/her in an examination room with the door closed. The patient should not be placed in any room where room exhaust is re-circulated without high-efficiency particulate air (HEPA) filtration.
- Once in an AIIR, the patient's facemask may be removed; the facemask should remain on if the patient is not in an AIIR.
- Limit transport and movement of the patient outside of the AIIR to medically-essential purposes. When outside of the AIIR, patients should wear a facemask to contain secretions.
- Dedicated HCWs should be assigned to the AIIR.
- Only essential personnel should enter the AIIR. Implement staffing policies to minimize the number of essential personnel who must enter the room.
- In the event in which large numbers of patients require AIIR, consideration can be made to placing patients who are confirmed to have the same infection together (cohorting).
- Once the patient vacates a room, unprotected individuals, including HCWs, should not be allowed in that room until sufficient time has elapsed for enough air changes to remove potentially infectious particles.
- 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 hand rubs. If hands are visibly soiled, use soap and water, not alcohol-based hand rubs.
 - Healthcare facilities should ensure that facilities and supplies for performing hand hygiene are readily available to all personnel.

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 touching the patient's intact skin or surfaces and articles in close proximity to the patient (e.g., medical equipment, bed rails, and linens).
- Remove and discard gloves immediately upon leaving the patient room or care area.

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

- Use respiratory protection (i.e., a respirator) that is at least as protective as a NIOSH-certified disposable N95 filtering facepiece respirator upon entry to the patient room or care area.
- Respirator use should be in the context of a complete respiratory protection program. Staff should be medically cleared, fit-tested if using respirators with tight-fitting face pieces (e.g., a NIOSH-certified disposable N95) and trained in the proper use (*Appendix 5*)

of respirators, safe removal and disposal, and medical contraindications to respirator use.

- The respirator should be the last part of PPE ensemble to be removed.
- If reusable particulate respirators are used, they must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use.
- If disposable particulate respirators are used, they should be removed and discarded after leaving the patient room or care area and closing the door.

D. Eye Protection

- Put on eye protection (i.e., goggles or face shield) upon entry to the patient room or care area.
- Remove and discard eye protection immediately upon leaving the patient room or care area.
- If reusable eye protection is used, it must be cleaned and disinfected according to manufacturer's reprocessing instructions prior to re-use.

(Sequence of putting on and removing PPE is presented in appendix 6, 7)

4.3.4. Patient Transport within Healthcare Facilities

- The nurse caring for the patient will transport the patient with the assistance of transportation personnel as needed.
- If an elevator is needed, use an empty elevator; if not available use a service elevator.
- The patient must wear a surgical mask over their nose and mouth during transport throughout the institution (if tolerable).
- HCWs who are transporting the patient should wear gown, goggles, and gloves.
- HCWs should wear particulate respirator if the patient is not wearing a surgical mask.

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.
- Equipment that re-circulates air (e.g., fans) should not be used, as this has the potential to turn a negative pressure room into a positive pressure room.

4.3.6.Safe Injection

The following recommendations 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 AIIR when feasible (*Appendix 4*)
- Consider use of portable HEPA filtration units to further reduce the concentration of contaminants in the air. Some of these units can connect to local exhaust ventilation systems (e.g., hoods, booths, tents) or have inlet designs that allow close placement to the patient to assist with source control; however, these units do not eliminate the need for respiratory protection for individuals entering the room.
- HCWs should adhere to PPE:
 - ✓ Wear a particulate respirator (e.g.N95 or higher) or powered air purifying respirator, elastomeric. When putting on a disposable particulate respirator, always check the seal (*Appendix 5*).
 - ✓ Wear eye protection (i.e. goggles or a face shield)
 - ✓ Wear a clean, non-sterile, long-sleeved gown
 - ✓ Wear clean gloves (some of these procedures require sterile gloves);
 - ✓ Wear an impermeable apron for some procedures with expected high fluid volumes that might penetrate the gown
 - ✓ Use of a hair cover is optional
- 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 (*Appendix5*).
- Conduct a proper environmental surface cleaning after each procedure.

4.3.8. Specimen Handling

During specimen collection, transportation, processing and storing always implement standard, contact, and airborne precautions are recommended.

4.3.9.Environmental Control

a) Cleaning the Patient-care Environment

- Meticulous daily cleaning of the patient care area is important in the prevention of cross infection

- Daily cleaning should be carried out and enhanced cleaning of frequent hand-touch surfaces, surfaces where the patient has been lying on and immediately around the patient's bed.
- Patient care area should be cleaned after the rest of the ward area.
- Curtains should be thoroughly cleaned by laundering in hot water at least weekly.
- 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 and be trained in these.
- Dedicated or disposable equipment must be used for cleaning.
- Clean equipment or surfaces in a way that avoids possible generation of aerosols
- If vacuuming is necessary, use a vacuum cleaner that is equipped with a high-efficiency particulate air (HEPA) filter.
- Cleaning equipment must be decontaminated following use.
- Launder mop heads daily and dry them thoroughly before storage or reuse.
- Cleaning environmental surfaces with water and detergent and applying commonly used disinfectants (such as hypochlorite) is an effective and sufficient concentration. (*Appendix 8*)

b) Drinking Vessels and Eating Utensils

- Eating utensils and drinking vessels that are being used should not be shared.
- Wash reusable items in a dishwasher after each meal or use.
- Water and detergents is sufficient to decontaminate dishware and eating utensils.
- Discard disposable items as infectious waste.

c) 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 air, surfaces and people.
- 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. For hot-water laundry cycles, wash with detergent or disinfectant in water at 70 °C for at Least 25 minutes. If low-temperature (i.e. < 70 °C) laundry cycles are used, choose a chemical

that is suitable for low-temperature washing when used at the proper concentration.

d) Waste Management

- Consider all waste from the patient-care area as infectious waste, treat and dispose according to the health-care facility's policy.
- Place all patient waste in biohazard labeled bags
- Ensure that health-care workers use appropriate full PPE during handling of waste.

4.3.10.Engineering Control

Consider designing and installing engineering controls to reduce or eliminate exposures by shielding HCWs and other patients from infected individuals includes:

- Installing physical barriers such as :
 - ✓ Partitions in triage areas
 - ✓ Curtains that are drawn between patients in shared areas.
 - ✓ Reducing exposures related to specific procedures such as using closed suctioning systems for airways suction in intubated patients.
- Ensuring that appropriate air-handling systems (with appropriate directionality, filtration, exchange rate, etc.) are installed and maintained in healthcare facilities.

4.3.11.Dead Body

A. Removal of dead body from the isolation room/area

- Apply standard, contact and airborne 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.
 - ✓ Non-sterile, latex gloves should cover cuffs of gown.
 - ✓ A particulate respirator at least as protective as N95.
 - ✓ Facial protection: face shield (preferably) or goggles.
 - ✓ If splashing of body fluid is anticipated add a balaclava-type cap(disposable)
 - ✓ 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 airborne precautions.

B. Autopsy

- Perform autopsies in an adequately ventilated room.
- Recommended PPE during autopsy:
 - ✓ scrub suits: tops and trousers, or equivalent garments
 - ✓ single-use, fluid-resistant, long-sleeved gowns
 - ✓ particulate respirator at least as protective as N95.
 - ✓ face shield (preferably) or goggles
 - ✓ either autopsy gloves (cut-proof synthetic mesh gloves) or two pairs of nonsterile gloves
 - ✓ balaclava type caps (disposable)
 - ✓ knee-high boots.
- Minimize aerosols in the autopsy room as much as possible.
- Remove most of the tissue or body substance with absorbent materials.
- 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.

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.
- For persons with acute respiratory symptoms, facilities should develop visitor restriction policies

that consider location of patient being visited (e.g., oncology units) and circumstances, such as end-of-life situations, where exemptions to the restriction may be considered at the discretion of the facility.

- 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.
 - ✓ Visitors should be instructed to limit their movement within the facility.
 - ✓ Visitors are advised to change personal clothes every day
 - ✓ Exposed visitors should be advised to report any signs and symptoms of acute illness to their health care provider for a period of at least 10 days after the last known exposure to the sick patient.

4.5. Training and Educating of Healthcare Workers

Provide all HCWs with job- or task-specific education and training on preventing transmission of infectious agents.

4.6. Surveillance

- Implement mechanisms and policies that recognize any increase in illness activity within the facility, and provide early signals of infection transmission.
- Disseminate information, alert HCWs, and encourage them to self report any acute respiratory illness.
- Communicate and collaborate with higher health authorities.

4.7. Monitoring of Ill and Exposed Healthcare Workers

A. For asymptomatic HCWs who have had an unprotected exposure (i.e., not wearing respiratory protection at the time of contact):

- Consider excluding from work for 10 days to monitor for signs and symptoms of respiratory illness.
- If necessarily to ensure adequate staffing of the facility, the asymptomatic provider could be considered for continuing work if they are placed on prophylactic influenza anti-viral medications and with wearing a facemask for source control. The facemask should be worn at all times while in the healthcare facility during a probable incubation period, e.g., 10 days after the exposure and the antivirals should be administered for this same duration.
- Both HCWs and patients should be reminded that persons treated with influenza antiviral medications continue to shed influenza virus while on treatment. Thus, hand hygiene, respiratory hygiene and cough etiquette practices should continue while on treatment.
- Asymptomatic HCWs who continue to work and are wearing a facemask for the purpose of source control (i.e., limiting transmission from exposed HCWs to other HCWs or patients), should be reminded that if they care for patients under airborne precautions (e.g., a patient covered by this guidance), the HCWs would need to change to a fit certified disposable N95 filtering facepiece respirator (without an exhalation valve) or other respirator providing equivalent or higher aerosol protection (i.e., the HCWs should not wear both a facemask and respirator at the same time). When respirator use is no longer needed, the HCWs should put a facemask back on as needed for source control.

B. HCWs who care for patients covered by this guidance should be advised to report any signs or symptoms of acute illness to their supervisor for a period of 10 days after the last known contact with the sick patient.

- Facilities should consider dedicating HCWs caring for these patients to minimize risk of transmission and exposure to other patients and other HCWs.
- Facilities should keep track of all HCWs (e.g., clinicians, environmental services workers, food service) who care for or enter the rooms of these patients.

C. HCWs who develop any respiratory symptoms after an unprotected exposure to patients covered by this guidance should;

- Not report to work
- Notify their supervisor and preventive medicine department
- Implement respiratory hygiene and cough etiquette
- Seek prompt medical evaluation.
- Comply with work exclusion until they are no longer deemed infectious to others.
- If specific treatment (e.g., antiviral medication) is available, such treatment should be started as soon as possible, especially for HCWs with underlying medical conditions that may put them at increased risk for complications.

D. Facilities and organizations providing healthcare should:

- Implement sick leave policies for HCWs that consistent with preventive medicine guidance for HCWs who may have infections to stay home, unless hospital admission for isolation and treatment is recommended.
- Ensure that all HCWs encompassed by these policies are aware of the sick leave policies
- Ensure that HCWs have ready access, including via telephone, to medical consultation and, if needed, prompt treatment.

5. References

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Appendix (1): Respiratory hygiene and cough etiquette

Stop the spread of germs that make you and others sick!

Cover your Cough



Cover your mouth and nose with a tissue when you cough or sneeze or cough or sneeze into your upper sleeve, not your hands.




Put your used tissue in the waste basket.



You may be asked to put on a surgical mask to protect others.

Clean your Hands

after coughing or sneezing.



Wash with soap and water or clean with alcohol-based hand cleaner.



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Appendix (2): Contact precautions sign



Appendix (3): Airborne precautions sign

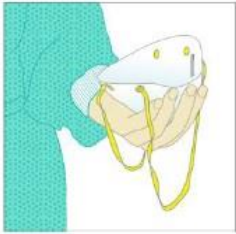


Appendix (4): Airborne Infection Isolation Room Recommendations

In acute care hospitals and long-term care settings, place patients who require airborne precautions in an AIIR that has been constructed as follow :

- Negative pressure with Pressure differential of 2.5 Pa (0.01 in water gauge).
- Direct exhaust of air to the outside. If it is not possible to exhaust air from an AIIR directly to the outside, the air may be returned to the air-handling system or adjacent spaces if all air is directed through HEPA filters.
- Air flow volume differential >125-cfm exhaust versus supply
- Provide air changes per hour of at least 6 in existing facility or 12 in new construction/renovation.
- Clean to dirty air flow.
- Sealed room, approximately 0.5 sq. ft. leakage.
- Whenever an AIIR is in use for a patient on airborne precautions, monitor air pressure daily with visual indicators (e.g., smoke tubes, flutter strips), regardless of the presence of differential pressure sensing devices (e.g., manometers)
- Keep the AIIR door closed when not required for entry and exit.
- An anteroom is preferred to work as air lock to AIIR.

Appendix (5): Particulate respirator seal check



1. Cup the respirator in your hand with the nosepiece at your fingertips allowing the headbands to hang freely below your hand.



2. Position the respirator under your chin with the nosepiece up.



3. Pull the top strap over your head resting it high at the back of your head. Pull the bottom strap over your head and position it around the neck below the ears.



4. Place fingertips of both hands at the top of the metal nosepiece.

Mould the nosepiece (USING TWO FINGERS OF EACH HAND) to the shape of your nose. Pinching the nosepiece using one hand may result in less effective respirator performance



5. Cover the front of the respirator with both hands, being careful not to disturb the position of respirator

5A Positive seal check

-Exhale sharply. A positive pressure inside the respirator= no leakage. If leakage, adjust position and/or tension straps. Retest the seal.



-Repeat the steps until respirator is sealed properly

5B Negative seal check






- Inhale deeply. If no leakage, negative pressure will make respirator cling to your face.

- Leakage will result in loss of negative pressure in the respirator due to air entering through gaps in the seal.

Appendix (6): Putting on personal protective equipment


وزارة الصحة

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 (7) Removing personal protective equipment



وزارة الصحة

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!



Appendix (8): Approved Environmental Disinfectants

Alcohol and sodium hypochlorite are approved **environmental** disinfectants. As with any other disinfectants, soiled surfaces need to be cleaned with water and detergent first.

1. Alcohol

- Ethyl alcohol (70%) is a powerful broad-spectrum germicide and effective against influenza virus.
- Alcohol is often used to disinfect small surfaces (e.g. rubber stoppers of multiple-dose medication vials, and thermometers) and occasionally external surfaces of equipment (e.g. stethoscopes and ventilators).
- Prolonged and repeated use of alcohol as a disinfectant can also cause discoloration, swelling, hardening and cracking of rubber and certain plastics.

2. Sodium hypochlorite

- Sodium hypochlorite is effective in killing bacteria, fungi and viruses, including influenza virus but it is easily inactivated by organic material.
- Sodium hypochlorite is widely available at a low cost, and recommended for surface disinfection in health-care facilities.
- Improper use of sodium hypochlorite may reduce its effectiveness for disinfection and can injure health-care workers.
- Recommended dilution is 1:100 dilution of 5% sodium hypochlorite for a concentration of 500ppm.
- Disinfection by wiping of nonporous surfaces requires a contact time of ≥ 10 minutes, while disinfection by immersion of items requires a contact time of 30 minutes.
- Do not mix sodium hypochlorite with detergents, because this reduces its effectiveness and can cause dangerous chemical reactions.
- Store sodium hypochlorite in a cool, shaded place.
- Sodium hypochlorite solution should be prepared fresh daily, label and date it, and discard unused mixtures 24 hours after preparation.
- Keep diluted solution covered and protected from sunlight, and if possible in a dark container, and out of the reach of children.

Appendix (9): Checklist for Isolation Room and Patient Care Area

The following items should be kept at all times so that PPE is always available for health-care workers.

Equipment	Stock present
1. Supply items for isolation trolley	
Eye protection (visor or goggles)	
Face shield (provides eye, nose and mouth protection)	
Particulate respirators (N95, FFP2, or equivalent)	
Medical (surgical or procedure) masks	
Gowns and aprons <ul style="list-style-type: none"> • single-use long-sleeved fluid-resistant or reusable non-fluid-resistant gowns • plastic aprons (for use over non-fluid-resistant gowns if splashing is anticipated and if fluid-resistant gowns are not available) 	
Latex single-use gloves for clinical care	
Alcohol-based hand rub	
2. Other required supply items for the care of the patients	
Liquid Soap for washing hands in clean water	
Reusable vinyl or rubber gloves for environmental cleaning	
Clean single-use paper towels	
Sharps containers	
Appropriate detergent for environmental cleaning and disinfectant for disinfection of surfaces, instruments or equipment	
Large plastic bags	
Appropriate infectious waste bags	
Linen bags	
Collection container for used equipment	