



Ministry of Health  
Kingdom of Bahrain

***Guideline On  
Middle East Respiratory Syndrome  
coronavirus (MERS-CoV)***

## Table of contents

Forward.....	3
The Disease.....	4
MERS-CoV Case Definition .....	6
What Health Care workers should do in case of a suspected MERS-CoV? .....	7
I. General Precautions:.....	7
II. Immediate Reporting To Public health: .....	7
III. Suspected case in private health institute .....	8
IV. Suspected case identified in secondary care.....	8
V. Suspected case identified in primary health care/private clinics .....	8
VI. Suspected case identified at the borders (airport, ports, causeway) .....	8
VII. Lab testing .....	9
VIII. Case management .....	9
IX. Home care for patients with MERS-CoV infection presenting with mild symptoms.....	11
X. Epidemiological Investigation .....	11
XI. Management of contacts.....	11
XII. Active search for additional cases .....	12
Annexes .....	13
Annex I A: Suspected MERS-CoV Surveillance Algorithm(For Public Health- General).....	13
Annex IB(1): Contact of MERS-CoV Case Surveillance: Algorithm.....	14
(For Public Health-General) .....	14
Annex IB(2): Contact of MERS-CoV Case Management: Algorithm.....	15
Annex IC: Case Transfer Protocol From Primary Health Care Centers/Private clinic To Salmaniya Medical Complex.....	16
Annex II: Case Reporting Form (to be filled by the treating physician) .....	17
Annex III: Severe Acute Respiratory Infections (SARI) Lab Request Form .....	18
Annex IV : Laboratory Guidelines for the Collection and Transport of Suspected Novel Coronavirus Samples .....	19
Annex V: Infection prevention and control guidelines for probable or confirmed cases of MERS- CoV .....	21
Annex VI: Case Investigation Form .....	25
Annex VII: Contact Investigation Form .....	27
Annex VIII: Home Care For Patients With MERS-Cov Infection.....	32

## **Forward**

This guideline has been developed to assist you in preparation for and the recognition of severe respiratory diseases that may have been acquired, such as novel corona virus infection, H7N9 influenza, avian influenza, SARS or other severe respiratory infection.

This guideline will be valuable when there are suspected or confirmed cases. Because of the current threat, I urge you to comply with this information in your practice.

Doctors, Pharmacists, Emergency Department Staff and other point of entry staff will be the first to be contacted by affected members of the public if such diseases appear in Bahrain. It is important that as a health care worker, you keep up-to – date with current information about such diseases.

Your vigilance in recognizing and managing these respiratory diseases is essential in the prevention of a major outbreak in Bahrain.

H.E. Sadiq AbdulKarim Al Shehabi  
Minister of Health

## The Disease

### **Infectious agent**

This is a new strain of coronavirus that has not been previously identified in humans. Coronaviruses are a large family of viruses that are known to cause illness in humans and animals. In humans, this large family of viruses is known to cause illness ranging from the common cold to Severe Acute Respiratory Syndrome (SARS).

The new virus is a beta coronavirus. The novel coronavirus is not the same virus that caused severe acute respiratory syndrome (SARS) in 2003. However, like the SARS virus, the novel coronavirus is most similar to those found in bats.

### **Mode of transmission**

not know yet how people become infected with this virus. Investigations are underway to determine the source of the virus, the types of exposure that lead to infection, the mode of transmission, and the clinical pattern and course of disease.

The recent study by Reusken and colleagues suggests that MERS-CoV or a virus very similar to the MERS-CoV has been recently circulating among camels. More study is needed to know whether the virus is actually the identical to that found in humans. To do this, it is important to recover the MERS virus itself from a camel.

The paper provides a very important clue to the source of the virus and a direction for further investigation. The most critical question remains to be answered, that is, the type of human exposures that result in infection. Most human cases do not have a history of direct contact with camels; if camels or other animals are the source, the route of transmission to humans may be indirect.

It is premature to rule out the possibility that other animals might serve as a reservoir or an intermediate host for the MERS-CoV. There continues to be a need for well planned, structured investigations carried out in conjunction with exposure investigations in humans.

[http://www.who.int/csr/disease/coronavirus\\_infections/faq/en/index.html](http://www.who.int/csr/disease/coronavirus_infections/faq/en/index.html)

### **Incubation period**

The incubation period for Coronavirus is still unknown, but the incubation period of the known patterns of Corona is approximately a week, and it is thought the incubation period of the novel virus is mostly the same.

### **Infectious period**

Still under study

**Clinical presentation**

Common symptoms are acute, serious respiratory illness with fever, cough, shortness of breath and breathing difficulties. Most patients have had pneumonia. Many have also had gastrointestinal symptoms, including diarrhoea. Some patients have had kidney failure. About half of people infected with MERS-CoV have died. In people with immune deficiencies, the disease may have an atypical presentation. It is important to note that the current understanding of illness caused by this infection is based on a limited number of cases and may change as we learn more about the virus.

**Management**

Currently, the best option for therapy of MERS-CoV is not well established. A recent review shed light on the possible therapeutic options for MERS-CoV. Convalescent plasma, ribavirin and interferon are possible interventions with various level of evidence.

## **MERS-CoV Case Definition**

### **Suspected case<sup>1</sup>**

- I. A person with
- one or more symptoms of acute respiratory tract infection ( e.g.fever  $\geq 38^{\circ}\text{C}$ , cough and difficulty in breathing)
- AND
- Clinical and radiological evidence of pulmonary parenchymal disease
- AND
- Needs admission to the hospital.

Be alert to cases coming from countries with confirmed MERS CoV infection

- II. Contacts of a confirmed case of MERS CoV infection

### **Confirmed case**

A person with laboratory confirmation of MERS-CoV infection<sup>2</sup>.

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<sup>1</sup> Case definition is updated according to the most recent recommendations

<sup>2</sup>Currently confirmatory testing requires molecular diagnostics including either a positive PCR on at least two specific genomic targets or a single positive target with sequencing on a second. However, the interim recommendations for laboratory testing for MERS-CoV should be consulted for the most recent standard for laboratory confirmation

## **What Health Care workers should do in case of a suspected MERS-CoV?**

**If MERS-CoV is suspected, the following steps should be taken accordingly:**

### **I. General Precautions:**

1. Clinical triage should be used for early identification of all patients with Acute respiratory infections (ARIs). Identified ARIs patients should be placed in an area separate from other patients,
2. The suspected case of MERS-CoV patient should be placed in an isolation room.
3. Cohorting of suspected patients .
4. Education of HCWs about infection control measures and the importance of seeking medical care at the onset of respiratory symptoms.
5. Follow the contact and droplet precautions for respiratory infections:
  - A mask, gloves and gown must be worn.
  - A highly protective mask (N95) and eye goggle should be used when performing an aerosol generating procedure (e.g. intubation and suction) and tracheoscopy should be performed in a negative pressure room.
  - Change gloves after contact with respiratory secretions or devices, or surface contaminated with secretions and between patient cares. Wash hands after glove removal.
  - Hands must be washed with soap or alcohol hand rubs before and after all contact with patient or the patients' environment, unless there is an exposure to patient's secretions or body fluid and there are visible contamination to wash with water and soaps.
  - All surfaces that have been soiled with secretions should be cleaned and disinfected with sodium hypochlorite solution.
6. Policies and procedures for all facets of occupational health should be followed , with emphasis on surveillance of (ARIs) among HCWs and monitoring of compliance by infection control team, and implementing improvements as needed.
7. If the patient needs to be transferred to the hospital by the ambulance, the team should be warned of the case and advised to take infection control precautions.

### **II. Immediate Reporting To Public health:**

Health care providers should report all cases meeting the confirmed or probable case definition immediately by telephone to public health directorate diseases control section on the communicable diseases hotline 66399868 followed by written reporting within 24 hours. The public health specialist covering hotline should consult the Public health Consultants for case definition:

- Dr. Adel Al-Sayyad, 39687214
- Dr. Kubra S. Nasser, 36662055
- Dr Wafa Al Sharbati,39406100

1. Algorithm (*Annex I-A*) and (*Annex I-B*) should be followed by public health specialists once they receive a notification about a case.
2. Public health consultant should follow the steps in Algorithm (*Annex IA*) to manage the suspected cases and contacts.
3. Reporting physician should fill in the reporting form (*Annex II*)

### **III. Suspected case in private health institute**

- For suspected case : Algorithm (*Annex I-A*) should be initiated and case definition should be reviewed
- For contact: Algorithm (*Annex I-B*) should be initiated by public health specialists

### **IV. Suspected case identified in secondary care**

- For suspected case : Algorithm (*Annex I-A*) should be initiated and case definition should be reviewed
- For contact : Algorithm (*Annex I-B*) should be initiated by public health specialists

### **V. Suspected case identified in primary health care/private clinics**

- Isolate the patient
- For suspected case : Algorithm (*Annex I-A*) should be initiated and case definition should be reviewed
- For referral to SMC: algorithm (*Annex I-C*) should be followed.
- For contact: algorithm (*Annex I-B*) should be initiated by public health specialists.
- **No** respiratory samples should be collected at local health centers.

### **VI. Suspected case identified at the borders (airport, ports, causeway)**

- isolate the patient



- For suspected case : Algorithm (*Annex I-A*) should be initiated and case definition should be reviewed
- For referral to SMC: Algorithm (*Annex I-C*) should be followed.
- For contact: algorithm (*Annex I-B*) should be initiated by public health specialist.

## **VII. Lab testing**

### **For suspected cases :**

- The case **should be discussed with public health consultant** before collecting the sample.
- The preferred sample is deep tracheal aspirate (DTA) but nasopharyngeal swab can be collected if DTA is not possible.
- Follow infection control measures during sample collection and transportation (*Annex V*).
- The reporting physician should fill in the Laboratory Request Form (*Annex III*)
- Blood sample (5-10 ml for adults and children and 1ml for newborns) in a plain tube and should be centrifuged and stored in two tubes at -20°C.

### **For confirmed cases:**

- Daily nasopharyngeal swabs and blood samples until nasopharyngeal swab result becomes negative.

## **VIII. Case management**

- All the suspected cases will be managed as inpatient where supportive measures such as ICU care facilities are available.
- Follow infection control measures (*Annex V*)

- **Treatment :**

Currently, the best option for therapy of MERS-CoV is not well established. A recent review shed light on the possible therapeutic options for MERS-CoV.<sup>1,2</sup> Convalescent plasma ,ribavirin and interferon are possible interventions with various level of evidence. The suggested doses <sup>1,3</sup>:

<b>Drug</b>	<b>Dose</b>
<b>Ribavirin(oral)</b>	2000 mg loading dose then 1200mg q8h for 4 days, then 600mg q8h for 4-6 days
<b>Pegelated interferon</b>	1.5mcg/kg once per week

1. Jaffar A. Al-Tawfiq, , Abdullah Assiri, , Ziad A. Memish.. Middle East respiratory syndrome novel corona(MERS-CoV) infection:Epidemiology and outcome update. Saudi Med J 2013; Vol. 34 (10)
2. Momattin H, Mohammed K, Zumla A, Memish ZA, Al-Tawfiq JA. Therapeutic Options for Middle East Respiratory Syndrome Coronavirus (MERS-CoV) - possible lessons from a systematic review of SARS-CoV therapy. Int J Infect Dis 2013; 17:e792-e798.
3. Reusken CB, Haagmans BL, Müller MA, Gutierrez C,Godeke GJ, Meyer B, et al. Middle East respiratory syndromecoronavirus neutralising serum antibodies in dromedarycamels: a comparative serological study. Lancet Infect Dis 2013;8: S1473-S3099.

## **IX. Home care for patients with MERS-CoV infection presenting with mild symptoms (Annex VIII)**

- In view of the currently limited knowledge of the disease and its transmission, confirmed and probable symptomatic cases of the MERS-CoV infection should be admitted.
- Patient with mild symptoms and without underlying condition at increased risk of developing complications, can be managed at home if there is no vacancy for inpatient care or in case of informed refusal of hospitalization. The patients and the household members should be educated on personal hygiene, basic infection prevention, control measures, symptoms of deterioration and how to seek medical advice.

## **X. Epidemiological Investigation**

- Public health staffs are responsible for completing and collecting the case investigation (*Annex VI*) and contact investigation Form (*Annex VII*).

## **XI. Management of contacts**

Household contact: is a person who has spent an hour or more with a symptomatic lab confirmed case.

Healthcare worker contact : is a healthcare worker who has spent 15 minutes or more with a symptomatic lab confirmed case.

- Nasopharyngeal and blood samples should be collected from all contacts.
- Contacts, should be advised to stay at home and their health should be monitored for 14 days from the last day of possible contact
- Contacts should seek immediate medical attention if they develop symptoms, particularly fever, respiratory symptoms such as coughing or shortness of breath, or diarrhea.
- A communication link with a health care provider (public health) should be available for the duration of the observation period.
- The healthcare provider should give in advance instructions on where to seek care when a contact becomes ill, what should be the most appropriate mode of transportation, when and where to enter the designated health care facility, and what infection control precautions should be followed.
- The receiving medical facility should be notified by public health specialist that a symptomatic contact will be coming to their facility.
- While traveling to seek care, the ill individual should wear a medical mask if available and tolerated.

- Public transportation to the health care facility should be avoided, if possible. If the ill contact is transported with a private vehicle, open the windows of the vehicle if possible.
- The ill contact should be advised to perform respiratory hygiene and stand or sit as far away from others as possible (at least 1 m), when in transit and when in the health care facility.
- Appropriate hand hygiene should be employed by the ill contact and caregivers. Any surfaces that become soiled with respiratory secretions or body fluids during transport should be cleaned with regular household cleaners or a diluted bleach solution, whichever is most appropriate.

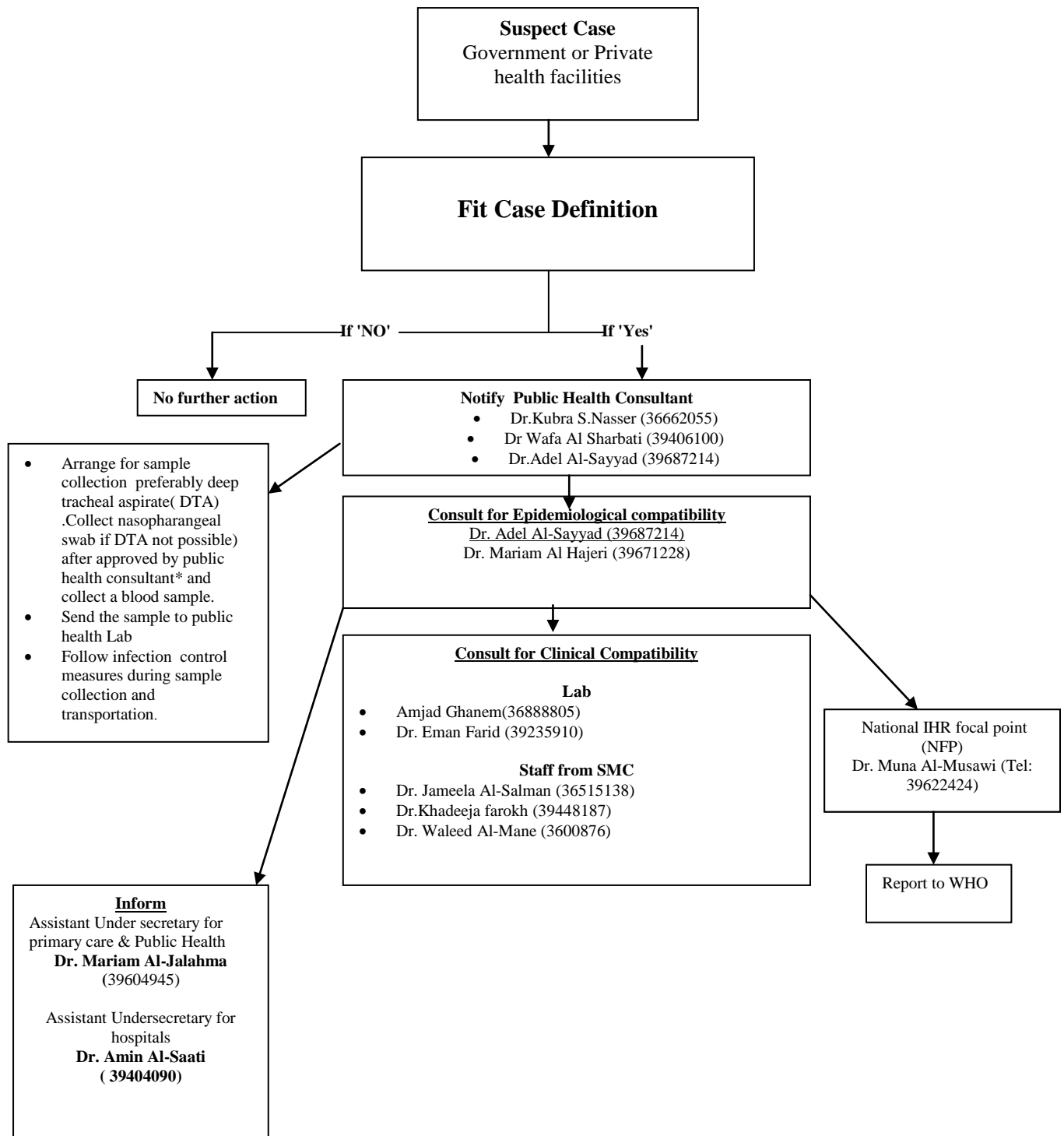
## **XII. Active search for additional cases**

Efforts to identify additional cases beyond close contacts are critical for prevention and control of infection, and to determine the total extent of transmission in the community. Active case finding in the area under investigation should focus on:

- Patients currently admitted to health care facilities in the community where the confirmed MERS-CoV case was discovered. Any patients currently in the hospital with unexplained Severe Acute Respiratory Infection (SARI) should be considered for testing for MERS-CoV.
- Chest physicians should be interviewed about recent cases of unexplained pneumonia and notified to immediately report any patients who have signs and symptoms that meet the case definition developed for the investigation .
- Patients who recently died of an unexplained illness consistent with the case definition developed for the investigation should be tested for MERS-CoV infection if appropriate clinical specimens are available.

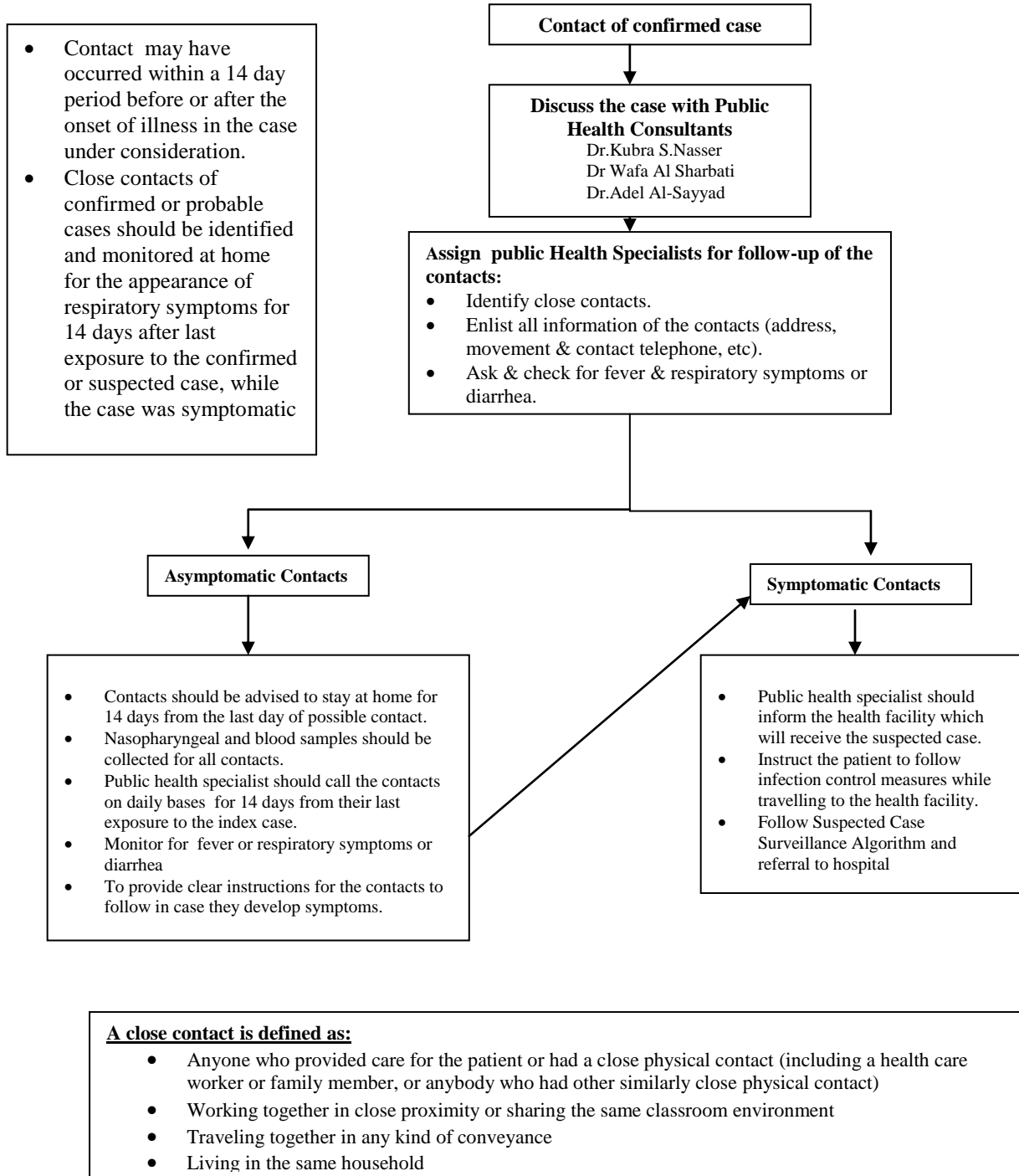
## Annexes

### Annex I A: Suspected MERS-CoV Surveillance Algorithm(For Public Health-General)



\*2<sup>nd</sup> samples should be collected ONLY from admitted cases to SMC and to be sent to SMC lab/ care of Dr Eman Fareed

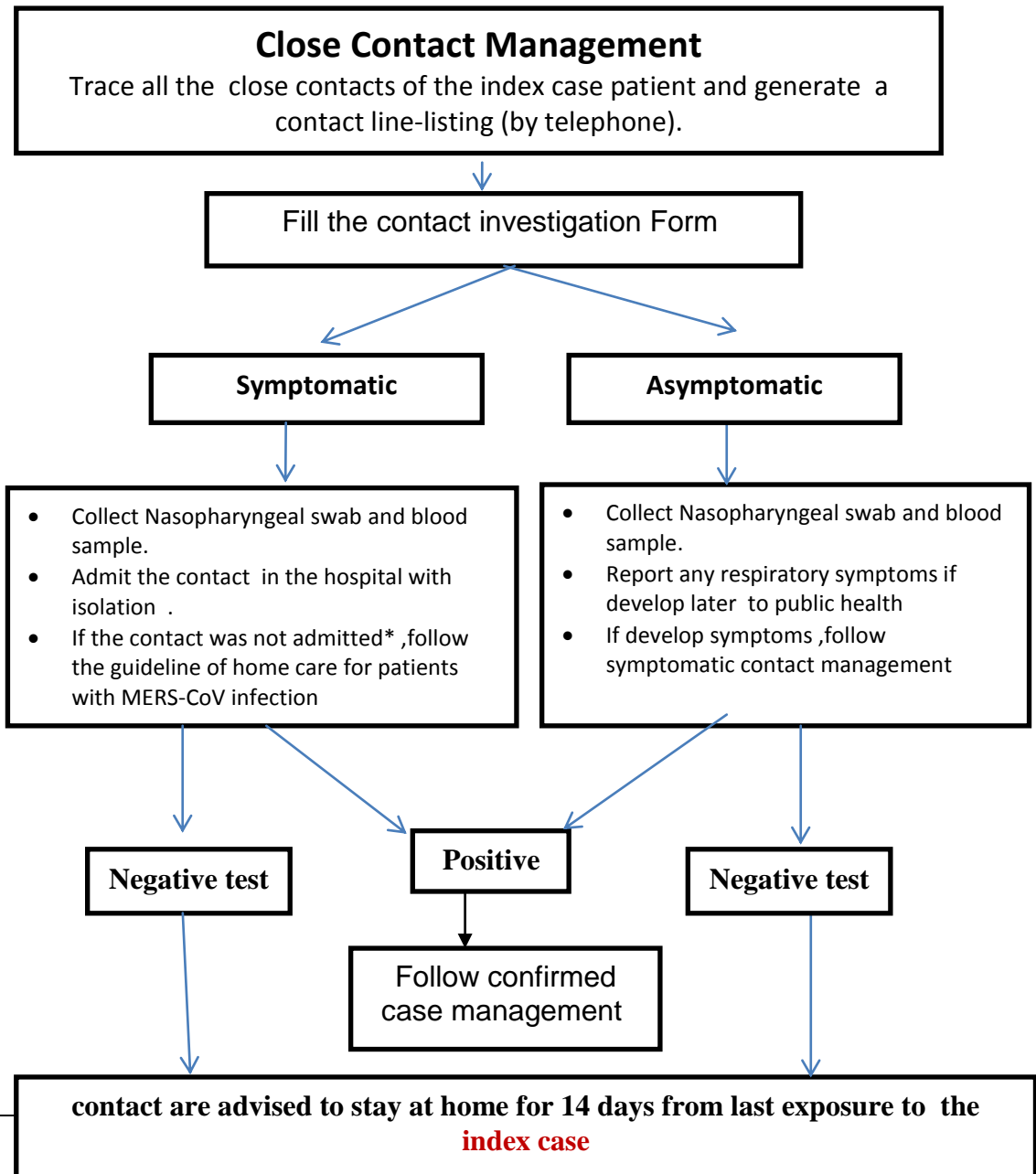
## Annex IB(1): Contact of MERS-CoV Case Surveillance: Algorithm (For Public Health-General)



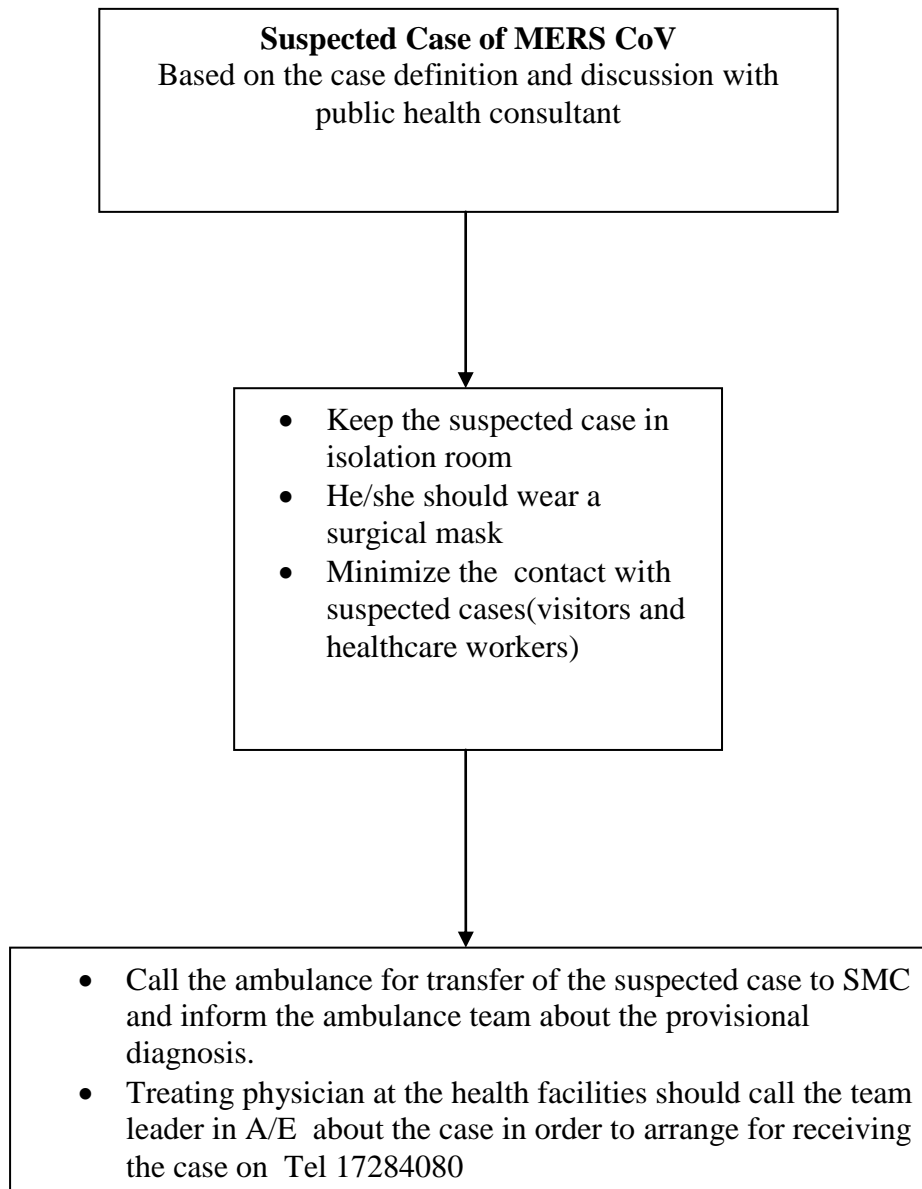
## Annex IB(2): Contact of MERS-CoV Case Management: Algorithm

- **Household contact:** is a person who has spent an hour or more with a symptomatic lab confirmed case.
- **Healthcare worker contact :** is a healthcare worker who has spent 15 minutes or more with a symptomatic lab confirmed case.
- **Symptomatic contact:** If the contact is ill with acute respiratory symptoms (fever and cough) at the initial visit or within 14 days since date of last exposure.

\*Home care is possible if the contact has mild symptoms with no other risk factors and there is no vacancy for inpatient care or in case of informed refusal of hospitalization.



**Annex IC: Case Transfer Protocol From Primary Health Care Centers/Private clinic To Salmaniya Medical Complex**





## Annex II: Case Reporting Form (to be filled by the treating physician)

EASTERN MEDITERRANEAN ACUTE  
RESPIRATORY INFECTION SURVEILLANCE NETWORK

[BAHRAIN] MINISTRY OF HEALTH  
National Surveillance for Severe Acute Respiratory Illness

PATIENT LABEL HERE		PATIENT QUESTIONNAIRE	
Today's Date: <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> </div> <small>DAY MONTH YEAR</small>		Patient/Record/Hospital Number: <div style="border: 1px solid black; width: 100%; height: 20px;"></div>	
Interviewer Name: <div style="border: 1px solid black; width: 100%; height: 20px;"></div>			
<b>1. CASE DEFINITION</b>			
<b>I. SARI Case Definition</b> Beginning during the past 7 days, did the patient experience: 1b. History of sudden onset fever or Current fever ( $\geq 38^{\circ}\text{C}$ ) <input type="radio"/> Y <input type="radio"/> NO 1c. Cough <input type="radio"/> Y <input type="radio"/> NO 1d. Patient meets SARI Case Definition Select "Yes" if both 1b and 1c are "Yes" <input type="radio"/> Y <input type="radio"/> NO 1e. Patient consented? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> NA		1a. Was the patient admitted to hospital? <input type="radio"/> Y <input type="radio"/> NO <span style="font-size: 2em;">➔</span> IF NOT ADMITTED, DO NOT CONTINUE  <b>II. Suspect ARI, A(H1N1)2009, or H5N1 Infection</b> 1a. Do you suspect Acute Respiratory Infection (ARI), Influenza A(H1N1)pdm09, or H5N1 infection? <input type="radio"/> Y <input type="radio"/> NO  If you selected "Yes" for I or II, COLLECT DATA If you selected "No" for I and II, DO NOT CONTINUE  If "Yes" for Suspect H5N1, Send specimen to lab Immediately	
<b>2. DEMOGRAPHIC INFORMATION</b> 2a. Date of Birth: <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> </div> <small>DAY MONTH YEAR</small>  2b. ONLY if date of birth unknown, estimate age (years): <input type="text"/> years 2c. ONLY if age < 2 years, age in months (0-24 months): <input type="text"/> months		2d. Sex: <input type="radio"/> Male (0) <input type="radio"/> Female (1) Patient Residence (During illness): 2e. Governorate/Province: <input style="width: 100%;" type="text"/> 2f. District: <input style="width: 100%;" type="text"/>	
<b>3. ADMISSION INFORMATION</b> 3a. Admission Department: <input type="radio"/> Medical wards (0) <input type="radio"/> Pediatrics (1) <input type="radio"/> ICU (2) <input type="radio"/> Isolation (3) <input type="radio"/> Short Stay Unit (4) <input type="radio"/> Other (5) 3b. Admission Date: <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> </div> <small>DAY MONTH YEAR</small>			
<b>4. CLINICAL SIGNS AND SYMPTOMS</b> 4a. Symptom Onset Date: <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> </div> <small>DAY MONTH YEAR</small> 4b. Temperature at admission: <input type="text"/> °C 4c. Respiratory Rate at admission (per min): <input type="text"/>		<b>5. CLINICAL HISTORY</b> 5a. Pre-existing chronic diseases? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk 5b. If "Yes", specify: <input type="radio"/> Asthma <input type="radio"/> COPD* <input type="radio"/> Tuberculosis <input type="radio"/> Other Respiratory <input type="radio"/> Cardiac <input type="radio"/> Endocrine <input type="radio"/> Hepatic <input type="radio"/> Renal <input type="radio"/> Neurologic <input type="radio"/> Hematologic <input type="radio"/> Other: <input style="width: 100%;" type="text"/>	
4d. Symptoms on Admission For all patients: <input type="radio"/> Wheezing <input type="radio"/> Abnormal breath sounds <input type="radio"/> Nasal congestion <input type="radio"/> Tachypnea <input type="radio"/> Sputum production <input type="radio"/> Hemoptysis <input type="radio"/> Chest pain <input type="radio"/> Sore throat <input type="radio"/> Shortness of breath (dyspnea)		5c. Seasonal influenza vaccination in last 6 months? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk 5d. Received antibiotics within 3 days before admission? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk 5e. Received antibiotics during while hospitalized? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk 5f. Pregnant? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk <input type="radio"/> NA 5g. Is the patient a regular smoker? <input type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk <input type="radio"/> NA	
<b>6. CLINICAL CHARACTERISTICS</b> 6a. Patient received antiviral medications? (e.g. Tamiflu, Relenza) <input type="radio"/> Y <input type="radio"/> NO 6b. Oxygen Saturation: <input type="radio"/> Done (1) <input type="radio"/> Not done (0) <span style="margin-left: 20px;">➔</span> 6c. If done, RESULTS: <input type="text"/> % 6d. If done, was patient on oxygen? <input type="radio"/> Y <input type="radio"/> NO 6e. White Blood Cell Count: <input type="radio"/> Done (1) <input type="radio"/> Not done (0) <span style="margin-left: 20px;">➔</span> 6f. If done, RESULTS: <input type="text"/> 6g. Throat swab? <input type="radio"/> Y <input type="radio"/> NO 6h. Nasopharyngeal swab? <input type="radio"/> Y <input type="radio"/> NO 6i. Date collected: <input type="text"/> DAY <input type="text"/> MONTH <input type="text"/> YEAR 6j. Chest X-Ray: <input type="radio"/> Done (1) <input type="radio"/> Not done (0) If done, RESULTS: <input type="checkbox"/> Normal infiltrate <input type="checkbox"/> Consolidation <input type="checkbox"/> Cavitations <input type="checkbox"/> Other: <input style="width: 100%;" type="text"/> <input type="checkbox"/> Opacities <input type="checkbox"/> Effusion <input type="checkbox"/> Pneumatocele <input type="checkbox"/> Bronchopneumonia patches		<b>7. CLINICAL COURSE AND OUTCOME</b> 7a. Admitted to ICU (For <1 day, enter 1) <input type="text"/> No. days 7b. Received oxygen (not ventilated) <input type="text"/> No. days 7c. Patient ventilated <input type="text"/> No. days 7d. Clinical Complications: <input type="checkbox"/> None <input type="checkbox"/> Pneumonia <input type="checkbox"/> ARDS** <input type="checkbox"/> Respiratory Failure <input type="checkbox"/> Cardiac Failure <input type="checkbox"/> Multi-organ Failure <input type="checkbox"/> Other: <input style="width: 100%;" type="text"/> 7e. Outcome: <input type="radio"/> Discharge (1) <input type="radio"/> Death (2) <input type="radio"/> Transfer (3) <input type="radio"/> Unknown (5) 7f. Outcome date: <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 2px;"></div> </div> <small>DAY MONTH YEAR</small> 7g. If transferred, where to? <input style="width: 100%;" type="text"/>	

\*Chronic Obstructive Pulmonary Disease  
Updated 22 Feb 2012

\*\*Acute Respiratory Distress Syndrome  
Eastern Mediterranean Acute Respiratory Infection Surveillance

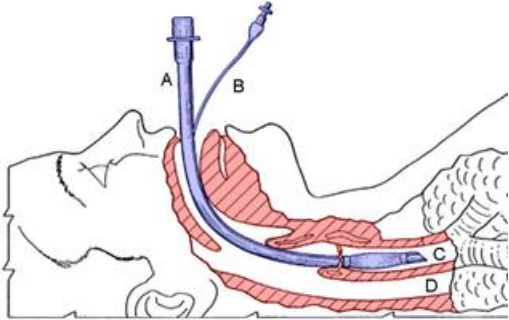

1<sup>st</sup> Data Entry Code

2<sup>nd</sup> Data Entry Code

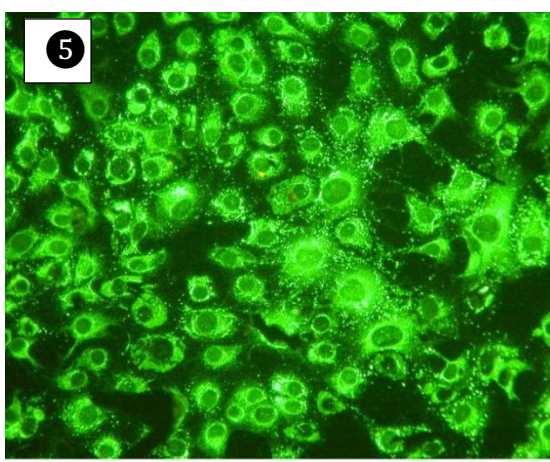
## Annex III: Severe Acute Respiratory Infections (SARI) Lab Request Form

<b>IDENTIFICATION</b>	
Patient's Sticker:	If female: <input type="checkbox"/> Pregnant <input type="checkbox"/> post-partum(up to 6 weeks) <input type="checkbox"/> Not Pregnant or post-partum
Governorate: Block:	Contact Telephone Number:
<b>CHRONIC MEDICAL CONDITIONS</b>	
<input type="checkbox"/> Chronic respiratory disease <input type="checkbox"/> Asthma <input type="checkbox"/> Diabetes <input type="checkbox"/> Chronic cardiac disease <input type="checkbox"/> Chronic renal disease <input type="checkbox"/> Chronic liver disease <input type="checkbox"/> Chronic neurological impairment <input type="checkbox"/> Immune compromised <input type="checkbox"/> Obesity	
<b>VACCINES AND ANTIVIRALS</b>	
Did the patient receive influenza antiviral drugs for this illness? <input type="checkbox"/> Yes <input type="checkbox"/> No    Date: _____  If yes, name of antiviral : <input type="checkbox"/> Oseltamivir <input type="checkbox"/> Zanamivir <input type="checkbox"/> Other _____	
Did the patient receive influenza vaccine in the current season? <input type="checkbox"/> Yes <input type="checkbox"/> No    Date: _____	
<b>SARI CASE CRITERIA</b>	
Measured fever of >= 38 degrees	<input type="checkbox"/>
Reported history of fever	<input type="checkbox"/>
Cough	<input type="checkbox"/>
Shortness of breath or difficulty breathing	<input type="checkbox"/>
Requiring overnight hospitalization	<input type="checkbox"/>
<b>PATIENT OUTCOME</b>	
Patient outcome : <input type="checkbox"/> Discharged alive <input type="checkbox"/> Died <input type="checkbox"/> Other	
Was the patient admitted to the ICU <input type="checkbox"/> yes <input type="checkbox"/> No	
Did the patient require mechanical ventilation during this hospitalization <input type="checkbox"/> yes <input type="checkbox"/> No	
<b>LABORATORY SPECIMEN</b>	
Type of specimen collected: <input type="checkbox"/> Nasopharyngeal swab <input type="checkbox"/> Deep throat swab <input type="checkbox"/> others	
Date of Sample collection : _____	
Dr name/ ID of person collecting specimen: _____	

**Annex IV : Laboratory Guidelines for the Collection and Transport of Suspected Novel Coronavirus Samples**

<p><b>1</b></p> 	<p><b>2</b></p> 
<p><b>Collect Deep tracheal aspirate (DTA) Sample</b></p>	<p><b>Transfer the sample into a Viral Transport Medium (VTM)</b></p>

	
<p><b>Transport the Sample to Public Health Laboratory in COLD Chain (4°C) before 9:00 AM. If a delay in testing of &gt; 48 hours consider freezing and shipping with dry ice.</b></p>	



The Sample sent to Public health Laboratory will be tested for Flu A, Flu B, and Novel Coronavirus by Polymerase Chain Reaction (RT –PCR )

6

REQ.NO: K13000300

RECEIVED: 08:20 23-05-2013

Nasopharyngeal secretions - 1

INFLUENZA A PCR

INFLUENZA A PCR

FLUAPC:TND

DEEP TRACHIAL ASPIRATION - 2

HUMAN CORONAVIRUS

HUMAN CORONAVIRUS

HCOV:TND

Results of Coronavirus and other tests are entered in RFW system for each patient by their CPR. Private Hospitals and Laboratories may contact PHL for the results.

## **Annex V: Infection prevention and control guidelines for probable or confirmed cases of MERS-CoV**

(adopted from WHO document May 2013)

### **1. Follow the Standard Precautions**

### **2. Additional infection prevention and control precautions when caring for patients with acute respiratory infection (ARI)**

In addition to Standard Precautions, all individuals, including visitors and HCWs, in contact with patients with ARI should:

- wear a medical mask when in close contact (i.e. within approximately 1 m) and upon entering the room or cubicle of the patient;
- perform hand hygiene before and after contact with the patient and his or her surroundings and immediately after removal of a medical mask.

### **3. Infection prevention and control precautions for aerosol generating procedures**

An aerosol-generating procedure is defined as any medical procedure that can induce the production of aerosols of various sizes, including small (< 5 µm) particles.

Additional precautions when performing aerosol-generating procedures:

- Wear a highly protective mask (N95)
- wear eye protection (i.e. goggles or a face shield);
- wear a clean, non-sterile, long-sleeved gown and 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;
- perform procedures in an adequately ventilated room; i.e. minimum of 6 to 12 air changes per hour in facilities with a mechanically ventilated room and at least 60 liters/second/patient in facilities with natural ventilation<sup>7</sup> ;
- limit the number of persons present in the room to the absolute minimum required for the patient's care and support;
- perform hand hygiene before and after contact with the patient and his or her surroundings and after PPE removal.

### **4. Infection prevention and control precautions when caring for patients with probable or confirmed MERS-CoV infection**

- Limit the number of HCWs, family members and visitors in contact with a patient with probable or confirmed MERS-CoV infection.

- To the extent possible, assign probable or confirmed cases to be cared for exclusively by a group of skilled HCWs both for continuity of care and to reduce opportunities for inadvertent infection control breaches that could result in unprotected exposure.
- Family members and visitors in contact with a patient should be limited to those essential for patient support and should be trained on the risk of transmission and on the use of the same infection control precautions as HCWs who are providing routine care.
- In addition to Standard Precautions, all individuals, including visitors and HCWs, when in close contact (within 1 m) or upon entering the room or cubicle of patients with probable or confirmed nCoV infection should always:
  - wear a medical mask;
  - wear eye protection (i.e. goggles or a face shield);
  - wear a clean, non-sterile, long-sleeved gown; and gloves (some procedures may require sterile gloves);
  - perform hand hygiene before and after contact with the patient and his or her surroundings and immediately after removal of PPE.
- If possible, use either disposable equipment or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect it between each patient use. HCWs should refrain from touching their eyes, nose or mouth with potentially contaminated gloved or ungloved hands.
- Place patients with probable or confirmed MERS-CoV infection in adequately ventilated single rooms or Airborne Precaution rooms; if possible, situate the rooms used for isolation (i.e. single rooms) in an area that is clearly segregated from other patient-care areas. When single rooms are not available, put patients with the same diagnosis together. If this is not possible, place patient beds at least 1 m apart.
- In addition, for patients with probable or confirmed MERS-CoV infection:
  - Avoid the movement and transport of patients out of the isolation room or area unless medically necessary. The use of designated portable X-ray equipment and other important diagnostic equipment may make this easier. If transport is required, use routes of transport that minimize exposures of staff, other patients and visitors.
  - Notify the receiving area of the patient's diagnosis and necessary precautions as soon as possible before the patient's arrival.
  - Clean and disinfect patient-contact surfaces (e.g. bed) after use.
  - Ensure that HCWs who are transporting patients wear appropriate PPE and perform hand hygiene afterwards.

## **5. Duration of isolation precautions for MERS-CoV infection**

The duration of infectivity for MERS-CoV infection is unknown. While Standard Precautions should continue to be applied always, additional isolation precautions should be used during the duration of symptomatic illness and continued for 24 hours after the resolution of symptoms. Given that little information is currently available on viral shedding and the potential for transmission of MERS-CoV testing for viral shedding should assist the decision making when readily available. Patient information (e.g. age, immune status and medication) should also be considered in situations where there is concern that a patient may be shedding the virus for a prolonged period.

## **6. Collection and handling of laboratory specimens**

All specimens should be regarded as potentially infectious, and HCWs who collect or transport clinical specimens should adhere rigorously to Standard Precautions to minimize the possibility of exposure to pathogens.

- Ensure that HCWs who collect specimens wear appropriate PPE.
- Ensure that personnel who transport specimens are trained in safe handling practices and spill decontamination procedures.

## HOW TO PUT ON AND TAKE OFF

# Personal Protective Equipment (PPE)



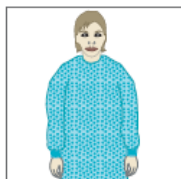
WHO/CDS/EPR/2007.8a  
Epidemiologic and Pandemic Alert and Response © World Health Organization 2008. Design and layout by Engage, Write & Design, www.engagewrite.com

### How to put on PPE (when all PPE items are needed)



#### Step 1

- Identify hazards & manage risk. Gather the necessary PPE.
- Plan where to put on & take off PPE.
- Do you have a buddy? Mirror?
- Do you know how you will deal with waste?



#### Step 2

- Put on a gown.



#### Step 3a

- Put on face shield.

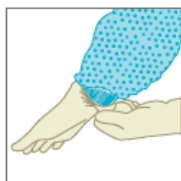
OR

#### Step 3b

- Put on medical mask and eye protection (e.g. eye visor/goggles)



**Note:** If performing an aerosol-generating procedure (e.g. aspiration of respiratory tract, intubation, resuscitation, bronchoscopy, autopsy), a particulate respirator (e.g. US NIOSH-certified N95, EU FFP2, or equivalent respirator) should be used in combination with a face shield or an eye protection. Do user seal check if using a particulate respirator.



#### Step 4

- Put on gloves (over cuff).

### How to take off PPE



#### Step 1

- Avoid contamination of self, others & the environment
- Remove the most heavily contaminated items first

#### Remove gloves & gown

- Peel off gown & gloves and roll inside, out
- Dispose gloves and gown safely



#### Step 2

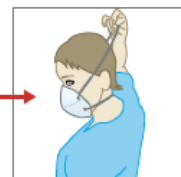
- Perform hand hygiene



#### Step 3a

##### If wearing face shield:

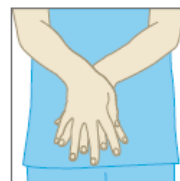
- Remove face shield from behind
- Dispose of face shield safely



#### Step 3b

##### If wearing eye protection and mask:

- Remove goggles from behind
- Put goggles in a separate container for reprocessing
- Remove mask from behind and dispose of safely



#### Step 4

- Perform hand hygiene



## Annex VI: Case Investigation Form

### MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV) INFECTIONS CASE INVESTIGATION FORM

(TO BE FILLED BY PUBLIC HEALTH STAFF)

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Unique Identifier

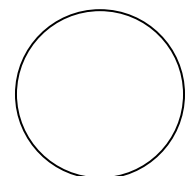
Case No
---------

<b>Reporting Details</b>			
Reporting date (dd/mm/yy)	/	/	
Reporting institution			
Contact Tel No:			
<b>Demographic details</b>			
Sex	<input type="checkbox"/> Male	<input type="checkbox"/> Female	<input type="checkbox"/> Unknown
Date of Birth (dd/mm/yy)	/	/	<b>OR</b> Age (years)
Usual country residence			
Nationality			
Health Care Worker	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If NO then occupation			
Contact Name		Tel No:	
<b>Address:</b>	House No:	Road No:	Block No:
<b>Sign and symptoms</b>			
Date of onset of initial symptoms (dd/mm/yy)	/	/	
Body temperature higher than 38° C	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Cough	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Difficulty in breathing	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Clinical findings of Respiratory Distress Syndrome	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
<b>Chest X-ray</b>			
Chest X-ray performed	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, evidence of pneumonia or parenchymal involvement	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Responds to standard antimicrobial treatment	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
<b>Hospital Admission History</b>			
Has the case been admitted to a Hospital whilst symptomatic	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, Name of the hospital			
Date of admission to hospital (dd/mm/yy)	/	/	
Has the case been in isolation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Has the case been on mechanical ventilation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, is the case currently on mechanical ventilation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Has the case been admitted to an Intensive Care Unit	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If not hospitalized, has the case been in home isolation	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
<b>History of exposure</b>			
Prior to their onset of illness, did the patient have close contact	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
With a known probable or suspect case of novel corona virus			
If yes, in what country City			
Date of contact (dd/mm/yy)	/	/	
During 10days preceding the onset of illness, did the case	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
travel to an "affected area"			
If yes, to which area (s)			
During the 10 days prior to onset of illness, did the case had	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
contact with animals			
If yes, what animal ,			

type of contact/duration,				
During the 10 days prior to onset of illness, did the case had consume raw food		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, what animal ,				
<b>For deceased patients ONLY</b>				
Unexplained respiratory illness resulting in death		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Autopsy examination performed		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, did autopsy demonstrate pathology of Respiratory		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
Distress Syndrome without an identifiable cause				
<b>Contact tracing</b>				
Has contact tracing been initiated		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, is any contact currently residing abroad		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
If yes, have the national Public Health Authorities of the recipient country been informed		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown
<b>Initial case classification</b> (dd/mm/yyyy)				
<input type="checkbox"/> Confirmed	<input type="checkbox"/> Probable	<input type="checkbox"/> Discarded	Date classified	/ /
<i>Please resubmit form when final case classification and the status is determined</i>				
<b>Final case classification</b> (dd/mm/yyyy)				
<input type="checkbox"/> Suspect	<input type="checkbox"/> Probable	<input type="checkbox"/> Discarded	Date classified	/ /
<b>Final status</b> (dd/mm/yyyy)				
<input type="checkbox"/> Recovered, if the case was admitted to hospital	Date of discharge	/	/	
<input type="checkbox"/> Died	Date of death	/	/	
<input type="checkbox"/> Left country while symptomatic	Medical evacuation	Yes / No		
	Date of departure	/	/	
	Flight details			
	Destination country			
<input type="checkbox"/> Lost to follow-up	Date of loss	/	/	

Name & Signature of reporting person: \_\_\_\_\_

Designation: \_\_\_\_\_



## Annex VII: Contact Investigation Form

### MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS (MERS-COV) INFECTIONS CONTACT INVESTIGATION FORM

<i>NAME</i>		<i>CPR</i>	
<i>NATIONALITY</i>		<i>Occupation</i>	

#### **EXPOSURE INFORMATION FOR HEALTHCARE WORKERS**

Date of last unprotected contact with confirmed case without full protection	/ /
Job title	
Place of work	
Direct patient contact (e.g. hands-on clinical contact)	Y / N

What type of protective equipment was used during contact with confirmed case and how often?

Surgical mask	Y / N Don't know	If yes, how often?	<input type="checkbox"/> Always (100% of time) <input type="checkbox"/> Often (>50% of time) <input type="checkbox"/> Infrequent(<50% of time) <input type="checkbox"/> Never
N95 mask	Y / N Don't know	If yes, how often?	<input type="checkbox"/> Always (100% of time) <input type="checkbox"/> Often (>50% of time) <input type="checkbox"/> Infrequent(<50% of time) <input type="checkbox"/> Never
Eye protection	Y / N Don't know	If yes, how often?	<input type="checkbox"/> Always (100% of time) <input type="checkbox"/> Often (>50% of time) <input type="checkbox"/> Infrequent(<50% of time) <input type="checkbox"/> Never
Gloves:	Y / N Don't know	If yes, how often?	<input type="checkbox"/> Always (100% of time) <input type="checkbox"/> Often (>50% of time) <input type="checkbox"/> Infrequent(<50% of time) <input type="checkbox"/> Never
Gown:	Y / N Don't know	If yes, how often?	<input type="checkbox"/> Always (100% of time) <input type="checkbox"/> Often (>50% of time) <input type="checkbox"/> Infrequent(<50% of time) <input type="checkbox"/> Never

Was the contact present while any aerosol prone procedures took place?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, what procedure were they present at? list and date if more than one	1) .....Date: / / 2) .....Date: / / 3) .....Date: / /
Was the contact wearing any type of mask at this these procedure (s) ?	1) <input type="checkbox"/> Surgical <input type="checkbox"/> N95 <input type="checkbox"/> None 2) <input type="checkbox"/> Surgical <input type="checkbox"/> N95 <input type="checkbox"/> None 3) <input type="checkbox"/> Surgical <input type="checkbox"/> N95 <input type="checkbox"/> None

If date of onset in confirmed case is known, please tick below all days of contact with the confirmed case in relation to their date of illness onset e.g. +1 means contact the day after onset of illness:

Date of illness onset  
for the confirmed case



Day	0	1	2	3	4	5	6	
Date								
Day	7	8	9	10	11	12	13	14
Date								

If date of onset of the confirmed case is unknown, please give the total number of days you were in contact with the confirmed case:

### Exposure information – Non Healthcare workers

Please mark location of contact with confirmed case:

Household		Health care	
School		Setting	
		Other (Specify)	

Date of last unprotected contact with confirmed case without full protection    /    /

Please tick below ALL days of contact with the confirmed case if date of onset is known, in relation to their date of illness onset e.g.-1 means contact on the day prior to onset of illness of the confirmed case, +1 means contact the day after onset of illness, etc:

Day	-7	-6	-5	-4	-3	-2	-1
Date dd/mm/yy							

Date of illness onset  
for the confirmed case



Day	0	1	2	3	4	5	6
Date							

Day	7	8	9	10	11	12	13	14
Date								

### Symptoms in Contact

**symptoms in contact in 14 days before the contact with the confirmed case until present date  
or 14 after last contact with the case, whichever is the earliest**

Has the contact been ill in the period from 14 days before onset in the confirmed case until the present?	NO/YES	Currently ill	NO/YES	If contact has not been ill please go to section
Date of first symptoms onset	/ / Unknown	Time of Onset	AM / PM Unknown	Maximum Temperature

**Symptoms:****Respiratory symptoms:**

<b>History of Fever</b>	No/Yes/ Unknown	<b>Runny nose</b>	No/Yes/ Unknown	<b>Sneezing</b>	No/Yes/ Unknown
<b>If yes, date</b>	/ / Unknown	<b>If Yes, date</b>	/ / Unknown	<b>If Yes, date</b>	/ / Unknown
<b>Cough</b>	No/Yes/ Unknown	<b>Sore Throat</b>	No/Yes/ Unknown	<b>Shortness of Breath</b>	No/Yes/ Unknown
<b>If Yes, date</b>	/ / Unknown	<b>If Yes, date</b>	/ / Unknown	<b>If Yes, date</b>	/ / Unknown
<b>If Yes, dry or productive</b>	Dry/Productive				

**Other symptoms:**

<b>Muscle ache</b>	No/Yes/ Unknown	<b>Joint ache</b>	No/Yes/ Unknown	<b>Vomiting</b>	No/Yes/ Unknown
<b>Diarrhoea</b>	No/Yes/ Unknown	<b>Nausea</b>	No/Yes/ Unknown	<b>Headache</b>	No/Yes/ Unknown
<b>Fatigue</b>	No/Yes/ Unknown	<b>Loss of appetite</b>	No/Yes/ Unknown	<b>Nose bleed</b>	No/Yes/ Unknown
<b>Seizures</b>	No/Yes/ Unknown	<b>Altered consciousness</b>	No/Yes/ Unknown		
<b>Rash</b>	No/Yes/ Unknown	<b>Other</b>	No / Yes, please specify		

**Outcome / Status of Contact**

Please complete only if contact has been ill or is currently ill.

Status (please mark one of the following):

Recovered				Dead	
If yes, date symptoms resolved (able to resume normal activities)	/ /	Still ill		If yes, date of death	/ /

If hospitalized :

Hospitalized	Yes / No / Don't know
If yes, date of admission to hospital and date of discharge	/ / / /
If yes, still hospitalized	Yes / No / Don't know

If Dead:

(NB. if this information is not currently available, please leave blank and send through an updated as soon as results are known):

Contribution of MERS –Cov to death:	Underlying / primary	
	Contributing /secondary	
	No contribution to death	

	Unknown
Was a post mortem performed :	Yes /No/Don't Know
Cause of death as MCCD (Medical Certificate of the cause of Death):	

Case classification of contact if appropriate:

Confirmed  Probable  Possible  Discarded  N/A

### **Medical History**

Does the contact have any underlying medical conditions? complete where appropriate.

Condition	Yes / No / Unknown	Comment	
Chronic heart disease	Y / N / Unknown		
Diabetes	Y / N / Unknown		
HIV/ other immunodeficiency	Y / N / Unknown		
Chronic kidney disease	Y / N / Unknown		
Chronic Liver disease	Y / N / Unknown		
Chronic respiratory disease, excluding asthma requiring medication	Y / N / Unknown		
Malignancy	Y / N / Unknown		
Organ or bone marrow Recipient	Y / N / Unknown		
Seizure disorder	Y / N / Unknown		
Chronic neurological disease	Y / N / Unknown		
Approximate height in cm: Approximate weight in cm:	Y / N / Unknown		
Pregnant	Y / N / Unknown	If yes, trimester:	First/second/third
		Estimated delivery date:	/ /
Other:	Y / N / Unknown		
Contact vaccinated with pneumococcal vaccine	Y / N / Unknown	Date of vaccination / /	

## **Annex VIII: Home Care For Patients With MERS-Cov Infection**

- In view of the currently limited knowledge of the disease and its transmission, confirmed and probable symptomatic cases of the MERS-CoV infection should be admitted.
- Patient with mild symptoms and without underlying conditions that increase risk of developing complications can be managed at home if inpatient care is unavailable or in case of informed refusal of hospitalization.
- The patients and the household members should be educated on personal hygiene, basic infection prevention, control measures, symptoms of deterioration and how to seek medical advice.

These recommendation should be followed while caring for patients with MERS-CoV infection :

- Limit contact with the ill person as much as possible. The household members should stay in a different room or, if that is not possible, maintain a distance of at least one meter from the ill person (e.g. sleep in a separate bed).
- An exception may be considered for a breastfeeding mother. Considering the benefits of breastfeeding and insignificant role of the breast milk in transmission of other respiratory viruses, the mother could continue breastfeeding. The mother should wear a medical mask when she is near her baby and perform careful hand hygiene before close contact with the baby. She would need also to apply the other hygienic measures .
- Ensure that anyone who is at increased risk of severe disease does not care for the ill person or come into close contact with the ill person. The current groups considered at increased risk for the MERS-CoV infection include those with chronic heart, lung or kidney conditions; diabetes; immunosuppression; blood disease; and older adults. If contact with the ill person cannot be avoided by those with an increased risk of severe disease, alternative housing should be considered.
- Currently there is no evidence to suggest increased risk for the MERS-CoV infection for pregnant women, but it may be prudent to prevent them from contact with the ill person
- Perform hand hygiene following all contact with the ill person or his/her immediate environment. Hand hygiene should also be performed before and after preparing food, before eating, after using the toilet, and whenever hands look dirty. Perform hand hygiene using soap and water. If hands are not visibly soiled, alcohol-based hand rub can be used.
- Assistance for the ill person to perform regular hand hygiene may be provided as needed.



- Paper towels to dry hands are desirable; if they are not available, use dedicated cloth towels and replace them when they become wet.
- Respiratory hygiene should be practiced by all, especially the ill person. Respiratory hygiene refers to covering the mouth and nose during coughing or sneezing using medical masks, cloth masks, tissues or flexed elbow, followed by hand hygiene.
- Discard materials used to cover the mouth or nose, or clean them appropriately after use (e.g. wash handkerchiefs using regular soap or detergent and water).
- The caregiver should wear a medical mask fitted tightly to the face when in the same room with the ill person. Masks should not be touched or handled during use. If the mask gets wet or dirty with secretions, it must be changed immediately. Discard the mask after use and perform hand hygiene after removal of the mask.
- Ensure that shared spaces (e.g. kitchen, bathroom) and the ill person's room are well ventilated (e.g. keep windows open).
- Avoid direct contact with body fluids, particularly oral or respiratory secretions and stool.
- Use disposable gloves to provide oral or respiratory care and when handling stool and urine, if possible. Perform hand hygiene after removing gloves.
- Gloves, tissues, masks, and other waste generated by the ill person or in the care of the ill person should be bagged (placed in a lined container in the ill person's room) before disposal with other household waste.
- Avoid other types of exposure to the ill person or contaminated items in the immediate environment of the ill person; for example, avoid sharing eating utensils, drinks, towels, washcloths or bed linen. Eating utensils and dishes should be cleaned with soap and water after use.
- Clean frequently touched surfaces such as bedside tables, bedframe, and other bedroom furniture daily with regular household cleaners or a diluted bleach solution (1 part bleach to 99 parts water).
- Clean bathroom and toilet surfaces daily with regular household cleaners or a diluted bleach solution (1 part bleach to 9 parts water).
- Clothes, bedclothes, bath and hand towels, etc., of the ill person can be cleaned using regular laundry soap and water, and dried thoroughly. Place contaminated linen into a laundry bag. Soiled laundry should not be shaken and direct contact of the skin and clothes with the contaminated materials from the ill person should be avoided.
- Consider use of disposable gloves and protective clothing (e.g. plastic aprons) when cleaning or handling surfaces, clothing or linen soiled with body fluids. Hand hygiene should be performed after glove removal.
- The symptomatic person should remain at home until satisfactory resolution of the symptoms. The decision to remove the ill person from home observation should be made based on either clinical or laboratory findings or both.
- All household members should be considered contacts and their health should be monitored.