Ministry of Health
Kingdom of Bahrain

Guidelines On
Novel coronavirus (nCoV)

Contents

This guideline has been developed as reference of public health and healthcare workers in the kingdom of Bahrain on managing nCoV infection based on the best available scientific evidence through providing guidance on nCoV surveillance activities in the healthcare setting and in the community, providing guidance on the infection control precautions for suspected and confirmed nCoV cases and Standardize the clinical management of nCoV patients

This guideline will be valuable suspected or confirmed cases were identified . 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 HCW , 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.

Abbreviations

ARDS	Acute Respiratory Distress Syndrome
ARI	Acute Respiratory Illness
DTA	Deep tracheal aspirate
HCW	Health Care Worker
ICD	Infection control Department
ICP	Infection Control Protocols
ICU	Intensive Care Unit
IHR	International Health Regulations
LRT	Lower Respiratory Tract
MERS-CoV	Middle East Respiratory Syndrome caused by Novel Coronavirus
MOH	Ministry of Health
nCorona	Novel Coronavirus
NFP	National Focal Point
NP	Nasopharyngeal
OP	Oropharyngeal
PHC	Primary Health Center
PHD	Public Health Directorate
PPE	Personal Protective Equipment
SARI	Sever Acute Respiratory Illness
SARS	Sever Acute Respiratory Syndrome
SMC	Salmaniya Medical Complex
WHO	World Health organization
URTI	Upper Respiratory Tract infection
nCoV	Novel corona virus linked to Wuhan city China

The Disease

Infectious agent

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV).

A novel coronavirus (nCoV) is a new strain that has not been previously identified in humans.The etiologic agent responsible for the cluster of pneumonia cases in Wuhan has been identified as a novel betacoronavirus, (in the same family as SARS-CoV and MERS-CoV) via next generation sequencing (NGS) from cultured virus or directly from samples received from several pneumonia patients

https://www.who.int/health-topics/coronavirus

https://www.who.int/docs/default-source/coronaviruse/20200114-interim-laboratory-guidance-version.pdf

Mode of transmission

Coronaviruses are zoonotic, meaning they are transmitted between animals and people. Some coronaviruses transmit easily from person to person, while others do not. Information about nCoV is limited currently, but it is reasonable to assume that nCoV may have a zoonotic (animal-to-human) source, given that many cases were associated with a market containing a range of dead and live animals. Although WHO has reported that there is no clear evidence of human-to-human transmission of nCoV to date, the possibility of human-to-human transmission cannot be excluded and precautions to prevent human-to-human transmission are appropriate for both suspected and confirmed cases.
https://www.gov.uk/government/publications/wuhan-novel-coronavirus-background-information/wuhan-novel-coronavirus-epidemiology-virology-and-clinical-features

Incubation period

The median incubation period for secondary cases associated MERS-CoV with limited human-to-human transmission is approximately 5 days (range 2-14 days). nCoV incubation period assumed to follow the same pattern.
https://www.cdc.gov/coronavirus/mers/clinical-features.html

Infectious period

The duration of infectivity for nCoV infection is unknown.

Clinical presentation

nCoV may present with mild, moderate, or severe illness; the latter includes severe pneumonia, ARDS, sepsis and septic shock.. For those with mild illness, hospitalization may not be required unless there is concern for rapid deterioration. All patients discharged home should be instructed to return to hospital if they develop any worsening of illness.

Uncomplicated illness	Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, headache, muscle pain or malaise. The elderly and immunosuppressed may present with atypical symptoms. These patients do not have any signs of dehydration, sepsis or shortness of breath.
Mild pneumonia	Patient with pneumonia and no signs of severe pneumonia. Child with non-severe pneumonia has cough or difficulty breathing + fast breathing: fast breathing (in breaths/min):
Severe pneumonia	Adolescent or adult: fever or suspected respiratory infection, plus one of respiratory rate >30 breaths/min, severe respiratory distress, or SpO2 <90% on room air (adapted from [1]). Child with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO2 <90%; severe respiratory distress (e.g. grunting, very severe chest indrawing); signs of pneumonia with a general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions. Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): <2 months, ≥60; 2–11 months, ≥50; 1–5 years, ≥40. 2 The diagnosis is clinical; chest imaging can exclude complications.
Acute Respiratory Distress Syndrom	Onset: new or worsening respiratory symptoms within one week of known clinical insult. Chest imaging (radiograph, CT scan, or lung ultrasound): bilateral opacities, not fully explained by effusions, lobar or lung collapse, or nodules. Origin of oedema: respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of oedema if no risk factor present. Oxygenation (adults): • Mild ARDS: 200 mmHg < PaO2/FiO2 ≤ 300 mmHg (with PEEP or CPAP ≥5 cmH2O, 7 or non-ventilated8) • Moderate ARDS: 100 mmHg < PaO2/FiO2 ≤200 mmHg with PEEP ≥5 cmH2O, 7 or non-ventilated8) • Severe ARDS: PaO2/FiO2 ≤ 100 mmHg with PEEP ≥5 cmH2O, 7 or non-ventilated8) • When PaO2 is not available, SpO2/FiO2 ≤315 suggests ARDS (including in non-ventilated patients) Oxygenation (children; note OI = Oxygenation Index and OSI = Oxygenation Index using SpO2): • Bilevel NIV or CPAP ≥5 cmH2O via full face mask: PaO2/FiO2 ≤ 300 mmHg or SpO2/FiO2 ≤264 • Mild ARDS (invasively ventilated): 4 ≤ OI < 8 or 5 ≤ OSI < 7.5 • Moderate ARDS (invasively ventilated): 8 ≤ OI < 16 or 7.5 ≤ OSI < 12.3 • Severe ARDS (invasively ventilated): OI ≥ 16 or OSI ≥ 12.3
Sepsis	Adults: life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection, with organ dysfunction*. Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia. Children: suspected or proven infection and ≥2 SIRS criteria, of which one must be abnormal temperature or white blood cell count.
Septic shock	Adults: persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP ≥65 mmHg and serum lactate level >2 mmol/L. Children (based on [12]): any hypotension (SBP 2 SD below normal for age) or 2-3 of the following: altered mental state; tachycardia or bradycardia (HR 160 bpm in infants and HR 150 bpm in children); prolonged capillary refill (>2 sec) or warm vasodilation with bounding pulses; tachypnea; mottled skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia.

Abbreviations: ARI, acute respiratory infection; BP, blood pressure; bpm, beats/minute; CPAP, continuous positive airway pressure; FiO2, fraction of inspired oxygen; MAP, mean arterial pressure; NIV, noninvasive ventilation; OI, Oxygenation Index; OSI, Oxygenation Index using SpO2; PaO2, partial pressure of oxygen; PEEP, positive end-expiratory pressure; SBP, systolic blood pressure; SD, standard deviation; SIRS, systemic inflammatory response syndrome; SpO2, oxygen saturation. *If altitude is higher than 1000m, then correction factor should be calculated as follows: PaO2/FiO2 x Barometric pressure/760. * The SOFA score ranges from 0 to 24 and includes points related to 6 organ systems: respiratory (hypoxemia defined by low PaO2/FiO2), coagulation (low platelets), liver (high bilirubin), cardiovascular (hypotension), central nervous system (low level of consciousness defined by Glasgow Coma Scale), and renal (low urine output or high creatinine). Sepsis is defined by an increase in the Sequential [Sepsis-related] Organ Failure Assessment (SOFA) score13 of ≥2 points. Assume the baseline score is zero if data are not availab

Table 2. Clinical syndromes associated with nCoV infection

Clinical management of severe acute respiratory infection when Novel coronavirus (nCoV) infection is suspected: Interim Guidance

Prevention and treatment

Apply the basic principles to reduce the general risk of transmission of acute respiratory infections:

- Avoiding close contact with people suffering from acute respiratory infections.
- Frequent hand-washing, especially after direct contact with ill people or their environment.
- Avoiding unprotected contact with farm or wild animals.
- People with symptoms of acute respiratory infection should practice cough etiquette (maintain distance, cover coughs and sneezes with disposable tissues or clothing, and wash hands).
- Within healthcare facilities, enhance standard infection prevention and control practices in hospitals, especially in emergency departments.
- WHO does not recommend any specific health measures for travelers. In case of symptoms suggestive of respiratory illness either during or after travel, the travelers are encouraged to seek medical attention and share their travel history with their health care provider. Travel guidance has been updated.

https://www.who.int/csr/don/17-january-2020-novel-coronavirus-japan-ex-china/en/

1. Public Health Considerations

Public Health Considerations

1.1 Surveillance and Reporting :

- **Surveillance objectives:**
  - To rapidly identify, isolate and treat cases, and prevent transmission to their contacts
  - To trace ,follow contacts and ensure that they are isolated rapidly if became symptomatic
  - To describe the epidemiology of nCoV infection and identifying risk factors for transmission.
- **Case definition:**

Suspected Case

1- Individuals with fever , cough and shortness of breath of any severity who, within 14 days before onset of illness, **had any of the following exposures**:

a. A history of **travel to** China in the 14 days prior to symptom onset.
b. Close physical contact with a laboratory confirmed case of nCoV infection, while that patient was symptomatic.

Confirmed case

A person with laboratory confirmation of nCoV infection.

- **Suspected case verification : Annex(1)**

  The public health specialist covering hotline should verify if the case meet case definition with public health consultants :

  - Dr. Adel Al-Sayyad,
  - Dr. Kubra S. Nasser,
  - Dr Ghada Al Zayani
  - Dr Afaf Merza
  - Dr Jaleela S.Jawad

- **Reporting : Annex(2)**

  nCoVis group A disease, suspected or confirmed cases should be reported immediately from all health facilities including laboratories by telephone on communicable diseases hotline 66399868 and followed by written or electronic notification within 24 hours using the reporting form Annex (2).
  Communicable disease group should notify National International Health Regulation Focal Point(NFP) about confirmed cases in order to be reported to WHO

- **Laboratory confirmation Annex(1,3)**

  Patients that fits the case definition should be screened for common respiratory illness and nCoV infection
  - Health care facility should arrange for sample collection Nasopharyngeal or oropharyngeal swab (NP), deep tracheal aspirate(DTA), sputum
  - The sample should be sent to public health Laboratory
  - The case should be discussed and notified through communicable diseases hotline Tel:66399868

- **Case epidemiological investigation : Annex(4)**

  The public health team at disease control section including public health specialists and public health consultants is responsible for case investigation as soon as they receive the notification according to case investigation form **Annex(4)**

- **Active search for additional cases**

  The guideline follow is similar to the guideline followed in (MERS-CoV)

  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 nCoV case was discovered. Any patients currently in the hospital with unexplained Sever Acute Respiratory Infection (SARI) should be considered for testing for nCoV.
  - 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 nCoV infection if appropriate clinical specimens are available.

- **Result sharing : Annex(1)**

  The confirmed laboratory result should be communicated with the reporting site as well as the higher authority in MOH by public health team.

1.2 Household and Community Contacts Management

The guideline follow is similar to the guideline followed in (MERS-CoV)

- **Community and household contacts of n CoV cases definition :**

  A close contact is defined as requiring greater than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or the sharing of a closed space with a symptomatic probable or confirmed case for a prolonged period (e.g. more than 2 hours).

  Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic probable or confirmed case for less than 2 hours.

- **Community and household contacts of nCoV cases tracing and follow up:**

  The public health team at disease control section including public health specialists and public health consultants is responsible for listing, tracing and follow up of household and other contacts of patients with nCoV infection in the community through the following steps:

  - Contact tracing assessment for all contacts should be followed based on **Annex(5)**.
  - Contacts are categorized by the presence or absence of suggestive nCoV symptoms at the first assessment.

- **Laboratory screening of the contacts**

Asymptomatic contacts	**Symptomatic contacts**
• Screening for nCoV is not generally required. • In certain situations, nCoV screening may be considered: - If the exposed contact had intense exposure to the nCoV case (e.g. direct care, sleeping in same room..) - If exposed contact is Immunocompromised (e.g. cancer, organ failure, use of immunosuppressive medications) or has other chronic underlying conditions (e.g., diabetes, hypertension) • RT-PCR-positive asymptomatic close contacts should be isolated, monitored closely for symptoms and only released from isolation following two negative RT-PCR tests separated by 24 hours	should be referred to SMC for assessment and admission as a suspected case of nCoV. A NP swab should be collected by a trained personnel and sent for nCoV screening at public health laboratory.

- **Follow up of asymptomatic contacts :**

If a person had close contact with someone who is confirmed to have, or being evaluated for, nCoV infection, he should :

- Monitor his health starting from the day of the first close contact with the person and continue for 14 days after the last close contact with the person. Watch for these signs and symptoms:
    - Fever. Take your temperature twice a day.
    - Coughing.
    - Shortness of breath or difficulty breathing.
    - Other early symptoms to watch for are chills, body aches, sore throat, headache, diarrhea, nausea/vomiting, and runny nose.
- If any of these symptoms develop call your healthcare provider as soon as possible.
- **Before** going to your medical appointment, call the healthcare provider and tell them about your close contact with someone who is confirmed to have, or being evaluated for, 2019-nCoV infection. This will help the healthcare provider's office take steps to keep other people from getting infected. Ask your healthcare provider to call the local or state health department.
- If you do not have any symptoms, you can continue with your daily activities, such as going to work, school, or other public areas.

https://www.cdc.gov/coronavirus/2019-ncov/guidance-prevent-spread.html#prevention-steps

1.3 Home Isolation Guidance

The guideline follow is similar to the guideline followed in (MERS-CoV)

If the home isolation is chosen for Individuals infected with nCoV who are stable enough, public health team should assess whether the house is suitable for home isolation.

- **A suitable home setting entails:**
    - A dedicated well ventilated bedroom for the infected individual
    - An educated healthy and rapidly accessible caregiver
    - A reliable communication tool (e.g. mobile phone)

- **Recommendations to Individuals infected and the caregivers include:**

    - The infected individual is instructed to limit contact with others as much as possible and to strictly adhere to respiratory etiquette and hand hygiene.
    - The household members should stay in a different room or, if not possible, maintain a distance of at least one meter.
    - The household members should wear a medical mask when in the same room (within one meter) with the infected individual. Masks should not be touched or

handled during use. If the mask gets wet or dirty with secretions, it must be changed immediately.

- Caregiver should use disposable gloves when handling the infected individual`s body secretions and perform hand hygiene after removing gloves.
- Used mask, gloves, tissues and other disposable items should be discarded in a covered waste bin, and hand hygiene performed after touching these items.
- Touched surfaces in the infected individual's room should be cleaned daily with regular household cleaners or a diluted bleach solution (1 part bleach to 99 parts water). The bathroom and toilet surfaces should be daily with regular household cleaners or a diluted bleach solution (1 part bleach to 9 parts water).
- Soiled clothes, bed sheets, and towels of the infected individual should not be shaken. They can be cleaned using regular laundry soap and water.

https://www.cdc.gov/coronavirus/2019-ncov/guidance-prevent-spread.html#prevention-steps

2. Laboratory testing

Laboratory testing

2.1 General Guidelines Annex(6) :

- Testing asymptomatic contacts is generally not recommended, under certain circumstances such as unprotected high-risk exposure of HCW and investigation of a hospital or community outbreak, such testing might be considered.
- All suspected cases should have respiratory samples collected for nCoV testing after discussion and approval of public health consultant **Annex(3)**.
- It is strongly advised that lower respiratory specimens such as sputum, endotracheal aspirate, or Broncho alveolar lavage be used when possible, if patients do not have signs or symptoms of LRT infection or lower tract specimens are not possible or clinically indicated, both NP and OP specimens should be collected and combined in a single collection container and tested together.
- Other types of clinical specimens could also be considered for molecular testing if necessary, including blood/serum, urine and stool. These generally have lower titres of virus than respiratory tract specimens but have been used to confirm cases when other specimens were inadequate or unobtainable .
- Ensure that HCWs who collect specimens should be properly trained on the technique and wear PPE appropriate for aerosol generating procedures.
- All specimens should be regarded as potentially infectious, and HCWs who transport clinical specimens should adhere rigorously to standard precautions to minimize the possibility of exposure to pathogens.
- Ensure that personnel who transport specimens are trained in safe handling practices and spill decontamination procedures.
- Place specimens for transport in leak-proof specimen bags (secondary container) that have a separate sealable pocket for the specimen (i.e. a plastic biohazard specimen bag), with the patient's label on the specimen container (primary container), and a clearly written request form specifying the source (NP or DTA)
- Respiratory specimens should be collected as soon as possible after symptoms begin ,ideally within 7 days and before antiviral medications are administered, however, if more than a week has passed since onset of illness and the patient is still symptomatic, respiratory samples should still be collected, especially lower respiratory specimens since respiratory viruses can still be detected by RT-PCR.

- Screening laboratory testing are done using commercial kit (Multiplex-PCR).
- Confirmatory laboratory testing requires a positive PCR on at least two specific genomic targets (upE and ORF1a) OR a single positive target (upE) with sequencing of a second target (RdRpSeq or NSeq).
- If initial testing of a NP swab is negative in a patient who is strongly suspected to have nCoV infection, patients should be retested using a lower respiratory specimen or, if not possible, a repeat NP and OP specimen. and appropriately timed paired acute and convalescent sera.

- An inadequate specimen would include a nasopharyngeal swab without an accompanying lower respiratory specimen, a specimen that has had improper handling, is judged to be of poor quality by the testing laboratory, or was taken too late in the course of illness.

- Inconclusive tests may include:

a. A positive test by nucleic acid amplification assay for a single target without further testing.

b. Evidence of sero-reactivity by a single convalescent serum sample ideally taken at least 14 days after exposure by a screening assay (ELISA or IFA) and a neutralization assay, in the absence of molecular confirmation from respiratory specimens.

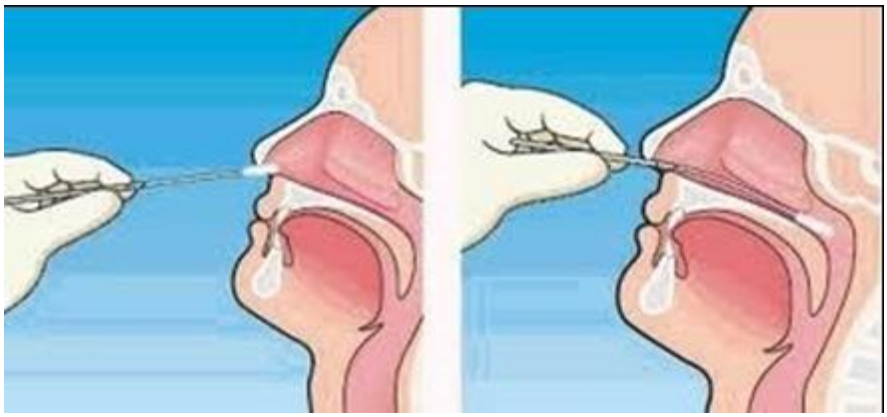
- Patients with an inconclusive initial testing should undergo additional virologic and serologic testing to determine if the patient can be classified as a confirmed MERS case. It is strongly advised that multiple lower respiratory tract specimens such as sputum, endotracheal aspirate, or bronchoalveolar lavage fluid be collected and tested when possible. If patients do not have signs or symptoms of lower respiratory tract disease and lower tract specimens are not available or clinically indicated, both nasopharyngeal and oropharyngeal swab specimens should be collected.
- IF obtaining discordant PCR results should consider referring the specimens to reference laboratories with great experience for confirmation

2.2 Diagnostic samples:

Upper respiratory tract

NP AND OP swabs (NP/OP swabs) **must be taken together.**

- OP swabs: Swab the posterior pharynx, avoiding the tongue.
- NP swabs: Insert a swab into the nostril parallel to the hard palate. Leave the swab in place for a few seconds to absorb secretions. Swab both NP areas



NP swabs

Lower Respiratory Specimen :

Sputum, endotracheal aspirate, or Broncho- alveolar lavage (taking all biosafety measures including the collection in highly containment setting)

Blood samples

- Serum for serologic testing
  Serum specimens should be collected during the acute stage of the disease, preferably during the first week after onset of illness, and again during convalescence, ≥ 3 weeks after the acute sample was collected. even , a single serum sample collected 14 or more days after symptom onset may be beneficial. MERS-CoV serologic test is currently under investigation and is for surveillance purposes and not yet for diagnostic purposes

- Serum for rRT-PCR testing
  For rRT-PCR testing (i.e., detection of the virus and not antibodies), a single serum specimen collected (5-10 ml tube of whole blood in a serum separator) during the first week after symptom onset, preferably within 3-4 days, after symptom onset, may be also be beneficial.

3.Infection Prevention and Control

3.1 Visual Triaging for patients with ARI (ARI) in the Emergency room :

The guideline follow is similar to the guideline followed in (MERS-CoV)

- Visual triage should be used for early identification of all patients with ARI in the Emergency Room.
- Visual triage station should be placed at the entry point of the emergency room entrance and attended by a trained nurse or nurse assistant.
- Post visual alerts (in appropriate languages) in the emergency rooms about the cough etiquette
- Provide enough supply of surgical masks& hand hygiene sanitizers in the emergency room
- All patients attending emergency room attendees (except those with immediately life-threatening conditions) must be triaged & asked about symptoms suggestive of ARI at the entrance
- All identified ARI patients should be provided with surgical mask to wear ,asked to perform frequent hand hygiene & asked to wait in special designated waiting area.
- Identified ARI patients should be asked about history of travel /contact with sick patients in the triage (to identify any patient that fit the case definition of suspected nCoV) , if highly suspected should be provided with surgical mask & referred directly to the isolation room in the emergency .
- Suspected nCoV patients should be evaluated the soonest possible by the attending doctor (in the isolation room) , and confirm the diagnosis (by clinical criteria) with the public health specialist , then to manage accordingly
- Refer to **Annex(7)**.for the emergency visual triaging checklist

3.2 Isolation Precautions :

The guideline follow is similar to the guideline followed in (MERS-CoV)

nCoV may spread between humans through contact and respiratory droplets. However, transmission through small particle droplet nuclei (aerosols) may occur particularly during aerosol generating procedures :

Patient placement in the hospital :

- For patients with suspected, or confirmed nCoV infection who are NOT CRITICALLY ILL, Standard, Contact, and Droplet precautions are recommended, so patient need to be placed in single patient rooms in an area that is clearly segregated from other patient-care areas.

- For patients who are CRITICALLY ILL, Standard, Contact, and Airborne precautions are recommended due to the high likelihood of requiring aerosol-generating procedures. so patient need to be placed in Airborne Infection Isolation Rooms (Negative Pressure Rooms).

Patient Transport in the hospital

Avoid the movement and transport of patients out of the isolation room or area unless medically necessary. The use of designated portable X-ray, ultrasound, echocardiogram and other important diagnostic machines is recommended when possible.

If transport is unavoidable, the following should be observed:

- Patients should wear a surgical mask during movement to contain secretions.
- 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.
- Ensure that healthcare workers (HCWs) who are transporting patients wear appropriate PPE and perform hand hygiene afterward.

Personal Protective Equipment (PPE):Annex (8)

- The following PPE should be worn by HCWs upon entry into patient rooms or care areas in the respected order:

    1. Gowns (clean, non-sterile, long-sleeved disposable gown).
    2. Surgical mask (or N95 when airborne precautions are applied)
    3. Eye protection (goggles or face shield).
    4. Gloves.

- Upon exit from the patient room or care area, PPEs should be removed and discarded inside the isolation room at the doorway or in the anteroom , EXCEPT

for N95 masks, which should be removed ONLY after leaving the patient room and closing the door.

- Remove PPEs in the following sequence:

    1. Gloves,
    2. Goggles or face shield,
    3. Gown and
    4. Mask

Isolation precaution during aerosol-generating procedure (AGP):

AGP is defined as any medical procedure that can induce the production of aerosols of various sizes, including small (< 5 microns) particles, including bronchoscopy, sputum induction, intubation and extubation, cardiopulmonary resuscitation, open suctioning of airways, Ambu bagging, nebulization therapy, high frequency oscillation ventilation and Bilevel Positive Airway Pressure ventilation- BiPAP (BiPAP is not recommended in MERS-CoV infected patients because of the high risk of generating infectious aerosols and lack of evidence for efficacy).

Additional precautions should be observed when performing aerosol- generating procedures, such as

- Limit the number of persons present in the room to the absolute minimum required for the patient's care and support.
- Wear N95 masks
- Wear eye protection (i.e. goggles or a face shield).
- Wear a clean, non-sterile, long-sleeved gown and gloves (some of procedures require sterile gloves).
- Wear an impermeable apron for some procedures with expected high fluid volumes that might penetrate the gown.
- Perform hand hygiene before and after contact with the patient and his or her surroundings and after PPE removal.

Duration of Isolation Precautions n-CoV infection

- The infectivity period for nCoV is not known .

  The guideline follow is similar to the guideline followed in (MERS-CoV)

- In order to discontinue isolation precautions, two negative lower respiratory samples 24 hours apart are required for ventilated patients and one negative respiratory sample in other patients including home isolated individuals.

3.3 Environmental Cleaning and Disinfection

Thorough environmental cleaning and disinfection are critical.

Daily/periodic cleaning

- Consider designating specific, well-trained housekeeping personnel for cleaning and disinfecting of nCoV patient rooms/units.
- Define the scope of cleaning that will be conducted each day; identify who will be responsible for cleaning and disinfecting the surfaces of patient-care equipment (e.g., IV pumps, ventilators, monitors., etc.).
- Consider using a checklist to promote accountability for cleaning responsibilities.
- Housekeeping personnel should wear PPE as described above. Housekeeping staff should be trained by the infection control team about nCoV, in proper procedures for PPE use, including removal of PPE, and the importance of hand hygiene.
- Keep cleaning supplies outside the patient room (e.g., in an anteroom or storage area).
- Keep areas around the patient free of unnecessary supplies and equipment to facilitate daily cleaning.
- Use hospital -approved disinfectants. Follow manufacturer's recommendations for use-dilution (i.e., concentration), contact time, and care in handling.
- Clean and disinfect nCoV patients' rooms at least daily and more often when visible soiling/contamination occurs.
- Give special attention to frequently touched surfaces (e.g., bedrails, bedside and over-bed tables, TV control, call button, telephone, lavatory surfaces including safety/pull-up bars, door knobs, commodes, ventilator and monitor surfaces) in addition to floors and other horizontal surfaces.
- Wipe external surfaces of portable equipment for performing x-rays and other procedures in the patient's room with a hospital -approved disinfectant upon removal from the patient's room.
- After an aerosol-generating procedure (e.g., intubation), clean and disinfect horizontal surfaces around the patient. Clean and disinfect as soon as possible after the procedure.

- Clean and disinfect spills of blood and body fluids by current recommendations for spill management
- Whenever possible, use either disposable equipment or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers).

Terminal Cleaning:

- Follow standard procedures for terminal cleaning of an isolation room after patient transfer or discharge
- Clean and disinfect all surfaces that were in contact with the patient or may have become contaminated during patient care including items such as blood pressure cuffs, pulse oximeters, stethoscopes, etc..
- Wipe down mattresses and headboards with an hospital -approved disinfectant.
- Privacy curtains should be removed, placed in a bag in the room and then transported to be laundered.
- No special treatment is necessary for window curtains, ceilings, and walls unless there is evidence of visible soil.
- Use fumigation machines for disinfection of the room as part of the terminal cleaning

3.4 Managing bodies in the mortuary

Although no postmortem transmission of nCoV has ever been documented, deceased bodies theoretically may pose a risk when handled by untrained personnel.

Body washing of nCoV cases should preferably be done at hospitals. However, it can be safely performed in public washing facilities attached to mosques provided that the washers have been trained on relevant infection control precautions including appropriate use of PPEs.

3.5. Management of Exposure to nCoV in Healthcare Facilities

The guideline followed is similar to the guideline followed in (MERS-CoV)

Healthcare workers exposed to a nCoV case :

Healthcare facilities should identify and trace all HCW s who had protected (proper use of PPE) or unprotected (without wearing PPE or PPE used improperly) exposure to patients with suspected, or confirmed nCoV infection.

The decision to permit a healthcare worker to resume his/her duress after an exposure to nCoV should be individualized. Infection control team will be ultimately responsible for taking that decision.

The following are general guidelines but management will depend on the infection control team risk assessment:

- Exposed asymptomatic healthcare workers WITH protected exposure OR unprotected low-risk exposure (more than 1.5 meters of the patient):
  - Testing healthcare workers for nCoV is not recommended
  - Healthcare workers can continue their duties, provided that they will be followed daily for for 14 days post exposure for the development of symptoms and adived for not travelling until cleared by infection control team.
  - Exposed symptomatic healthcare workers WITH protected exposure OR unprotected low-risk exposure will be considered CLEAR if they:
    - Remain asymptomatic AND
    - The observation period is over (14 days post exposure).

- Exposed Healthcare workers who had unprotected high-risk exposure (within 1.5 meters of the patient) or have suggestive symptoms regardless of exposure type:
  - Healthcare workers shall stop performing their duties immediately.
  - Testing (NP swabs) for nCoV is required (preferably 24hr or more after the exposure)
  - Healthcare workers shall not resume their duties or travel until cleared by infection control team.

- Exposed healthcare workers who had unprotected high-risk exposure (within 1.5 meters of the patient) or have suggestive symptoms regardless of exposure type are considered CLEAR(resume work) if:

a. They are asymptomatic for at least 48 hrs AND
b. The observation period is over (14 days post exposure) AND
c. Had at least one negative RT-PCR for nCoV.

- Healthcare workers who test positive for nCoV (regardless of the exposure type):
  - Healthcare workers shall not resume their duties until cleared by infection control team (two consecutive upper respiratory tract samples (i.e. NP and/or OP swabs) taken at least 24 hours apart test negative on RT-PCR. Tests should be conducted at least weekly until a first negative test and then every 24-48 hours.)
- Symptomatic Healthcare workers who test positive for nCoV:
  - Healthcare workers shall not resume their duties until cleared by infection control team(two consecutive respiratory tract samples taken at least 24 hours apart test negative on RT-PCR, re-testing should be done at the end of the first week of confirmation until a first negative test and then every 24-48 hours.)

3.6 Patients exposed to a nCoV case

Patients can be exposed to nCoV patients prior to diagnosis or due to the failure of implementing recommended isolation precautions. The following are general guidelines but management will depend on the infection control team risk assessment:

Patients who shared the same room (any setting e.g. ward with shared beds, open ICU, open emergency unit...etc) with a confirmed case of nCoV for at least 30 minutes should have the following :

- Testing (NP swabs or deep respiratory sample if intubated) for nCoV is required (preferably 24hr or more after the exposure).

- Patients should be followed daily for symptoms for 14 days after exposure.
- If negative on initial testing, exposed patients should be retested with RT-PCR if they develop symptoms suggestive of nCoV within the follow up period.

Patients discharged during the follow up period (14 days after exposure) must be reported to public health department to continue monitoring for symptoms

4 Case Management in Health Settings

4.1 Suspected case in private hospitals

- For suspected case : Algorithm **Annex(1)**.should be initiated and case definition should be reviewed
- For referral to SMC: algorithm **Annex(9)**.should be followed.
- For contact: **Annex(5)** contact investigation will be initiated by public health specialists and infection control team if indicated
- **No** respiratory samples should be collected at private hospital if the case will be referred to SMC

4.2 Suspected case identified in secondary care

- For suspected case : Algorithm **Annex(1)**.should be initiated and case definition should be reviewed
- For contact: **Annex(5)** contact investigation will be initiated by public health specialists and infection control team if indicated
- For details of case management in secondary care : **Annex (10)**

4.3 Suspected case identified in primary health care/private clinics

- Isolate the patient
- For suspected case : **Annex(1)**.should be initiated and case definition should be reviewed
- For referral to SMC: algorithm **Annex(9)**.should be followed.
- For contact: **Annex(5)** contact investigation will be initiated by public health specialists and infection control team if indicated
- **No** respiratory samples should be collected at local health centers.

4.4 Suspected case identified at the boarders (airport, ports, causeway)

- isolate the patient
- For suspected case : Algorithm **Annex(1)**.should be initiated and case definition should be reviewed
- For referral to SMC: Algorithm **Annex(9)**.should be followed.
- **Annex(5)** contact investigation will be initiated by public health specialists and infection control team if indicated
- **No** respiratory samples should be collected at borders health facility

4.5 Case medical management in secondary care

- Suspected or confirmed nCoV patients should be admitted to health-care facilities only if medically indicated. Clinically stable patients or asymptomatic infections can be managed at home (see Home isolation guidance above 1.3.) .

- Critically ill patients may require sophisticated potentially lifesaving interventions in critical care unit (e.g. Extra-Corporeal Membrane Oxygenation).

- The use of non-invasive ventilation (e.g. Bi-level Positive Airway Pressure-BiPAP) should be avoided in patients with suspected or confirmed nCoV pneumonia. This intervention enhances the risk of infection transmission through the aerosol generation and it lacks evidence of efficacy over endotracheal intubation and mechanical ventilation.
- Meticulous ICU supportive care is paramount to decrease mortality from nCoV infection.
- The use of antivirals for MERS-CoV is not recommended on routine basis
- EXTRACORPOREAL MEMBRANE OXYGENATION (ECMO)

There is evidence that ECMO may offer survival benefits in some nCoV patients , so it might be considered among patient < 60 years with acute lung injury if there is no contraindication

References:

1-World health organization . Interim Guidance for Healthcare Professionals, 2020

2- Center of disease control. Corona virus 2019

https://www.cdc.gov/coronavirus/2019-ncov/guidance-prevent-spread.html#prevention-steps

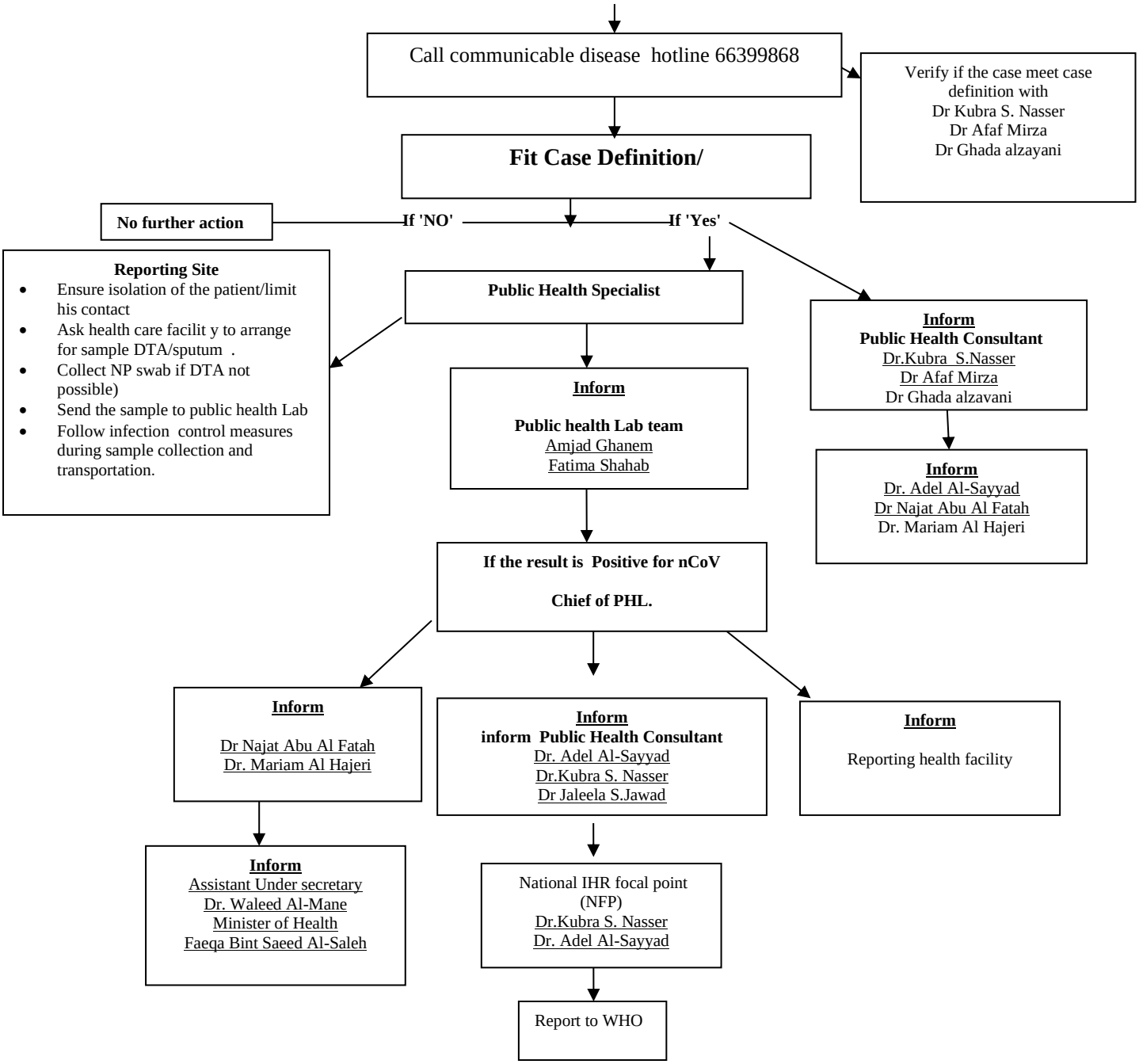
3-https://www.gov.uk/government/publications/wuhan-novel-coronavirus-background-information/wuhan-novel-coronavirus-epidemiology-virology-and-clinical-features

4- Guidelines On Middle East Respiratory Syndrome coronavirus (MERS-CoV).Ministry of health Bahrain .

Annexes

Annex (1) : Suspected nCoV Surveillance Algorithm (For Public Health)

Suspect Case
Governmental or Private health facilities



Annex (2) : Suspected nCoV Reporting Form

KINGDOM OF BAHRAIN
MINISTRY OF HEALTH
PUBLIC HEALTH DIRECTORATE

Novel Corona virus (nCoV) LAB REQUEST FORM

Health site : **WARD:**

CASE DEFFINITION

Acute respiratory infection With:
☐ fever or measured fever of ≥ 38 ☐ onset within the last 10 days
☐ cough ☐ hospitalization Date of admission_____

IDENTIFICATION

Patient's Sticker:

If female:
☐ Pregnant ☐ post-partum(up to 6 weeks)
☐ Not Pregnant or post-partum

CHRONIC MEDICAL CONDITIONS (RISK FACTORS)

☐ Chronic respiratory disease ☐ Asthma ☐ Diabetes ☐ Chronic cardiac disease ☐ Chronic renal disease
☐ Chronic liver disease ☐ Chronic neurological impairment ☐ Immune compromised ☐ Obesity

EXPOSURE HISTORY

Contact with sick patient ☐Yes ☐No ☐Unknown Contact with animal ☐Yes ☐No ☐Unknown

History of travel ☐Yes ☐No if yes place _____ Date _____

Did you travel to china in the last 14 days? ☐Yes ☐No

Did the patient had a contact with confirmed nCov cases? ☐Yes ☐No

Did the patient attend any health care facility in the past 14 days? ☐Yes ☐No

Did the patient attend any mass gathering in the past 14 days ? ☐Yes ☐No

Is the patient a health care worker ? ☐Yes ☐No

CLINICAL COURSE /INVESTIGATIONS

Date of Symptoms onset _____
Diagnosis: Pneumonia ☐Yes ☐No - Acute respiratory distress syndrome ☐Yes ☐No
ICU admission☐Yes ☐No Ventilation: ☐Yes ☐No

Type of specimen collected: ☐ Nasopharyngeal swab ☐ Deep throat swab ☐ others

Date of Sample collection : _____ Results _____

Chest X-Ray ☐ YES ☐ NO

IF Done ☐ Normal ☐ Abnormal If abnormal specify lesion _____

VACCINES , ANTIVIRALS , OTHERS

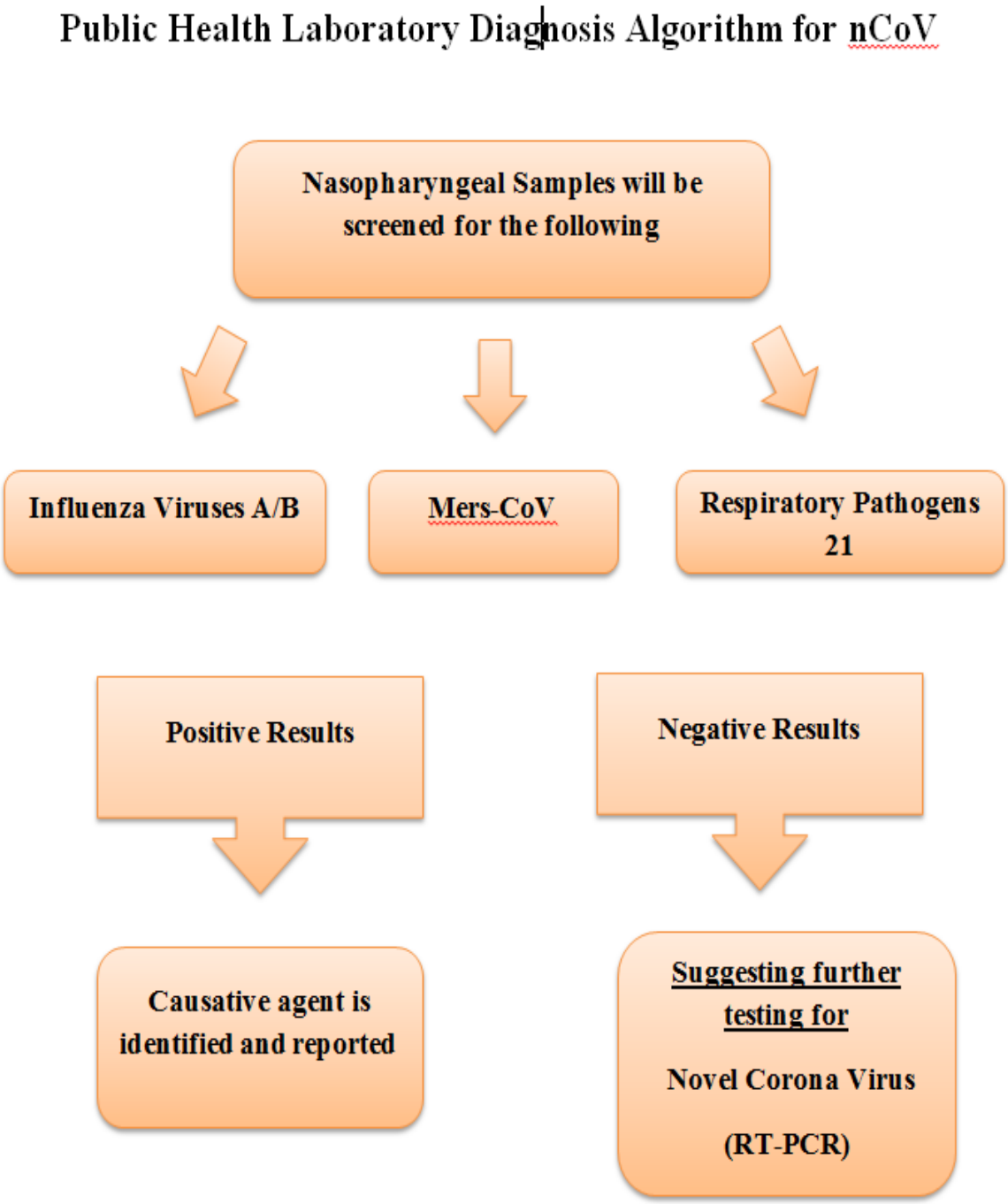
Did the patient receive influenza antiviral drugs for this Illness? ☐ Yes ☐ No

If yes, name of antiviral : ☐ Oseltamivir ☐ Zanamivir ☐ Other _____Date: _____

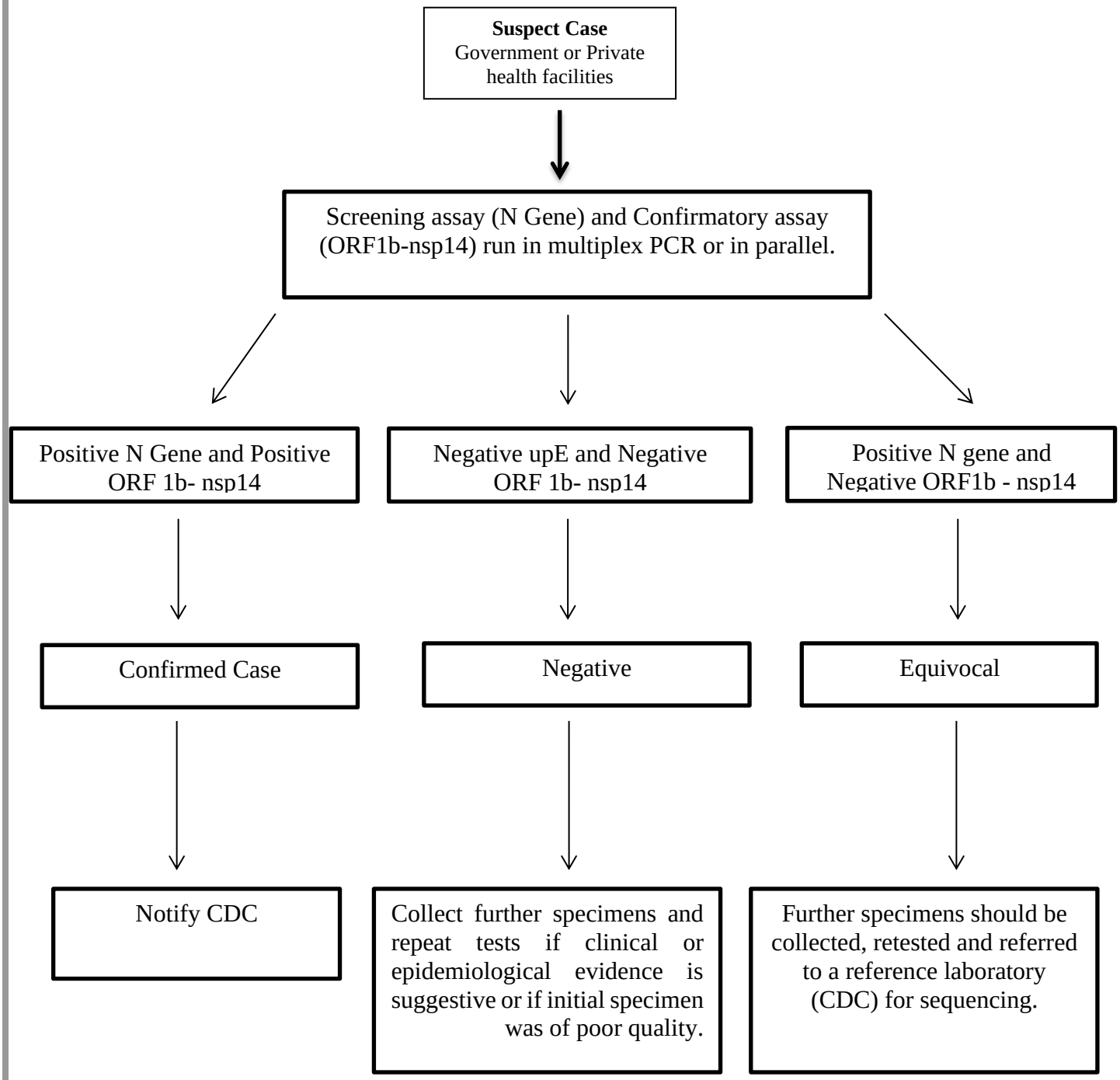
Kindly send this form with the specimen to Public health laboratory .

Dr name:_____

Annex (3):Testing Suspected nCoV



Algorithm for testing suspected cases under investigation for nCoV by RT-PCR



Annex (4):Case investigation Form

KINGDOM OF BAHRAIN
MINISTRY OF HEALTH
PUBLIC HEALTH DIRECTORATE

DCS\CDU\Program (Corona)

RESPIRATORY SYNDROME CORONAVIRUS (NOVEL -COV) INFECTIONS CASE INVESTIGATION FORM

Case No:----------/----------

Demographic Details

Patient's Name:---------- CPR: ☐☐☐☐☐☐☐☐☐

Date of birth:----------/----------/---------- Age: ☐☐

Sex: ☐ Nationality:---------- Usual country residence:----------

Address: Flat:---------- House No: ---------- Road No: ---------- Block No: ----------

Area:---------- Governorate:----------

Pt'sPhone: ☐☐☐☐☐☐☐☐ Contact's Phone: ☐☐☐☐☐☐☐☐

Type of housing: Single family☐ Complex family ☐ Compound ☐

Dose the patient has another home to live in? yes ☐ No ☐ Adress2:----------

Occupation:---------- Employer:---------- CR No/CPR:----------

Student: Yes ☐ No ☐ School:---------- Educational level:----------

Reporting Details

Reporting date : ----------/---------/--------- Reporting Source:----------

Name of reporter:---------- Reporter contact No:----------

Chronic Medical Conditions (Risk Factors)

☐ Chronic respiratory disease ☐ Asthma ☐ Diabetes ☐ Chronic cardiac disease ☐ Chronic renal disease

☐ Chronic liver disease ☐ Chronic neurological impairment ☐ Immune compromised ☐ Obesity, other----------

Sign and symptoms

Date of onset of initial symptoms: ----------/---------/---------

Body temperature higher than 38° C	Yes☐	No☐	Unknown☐
Cough	Yes☐	No☐	Unknown☐
Difficulty in breathing or shortness of breath	Yes☐	No☐	Unknown☐
Clinical findings of Respiratory Distress Syndrome	Yes☐	No☐	Unknown☐

Chest X-ray

Chest X-ray performed	Yes☐ No☐ Unknown☐
If yes, evidence of pneumonia or parenchymal involvement	Yes☐ No☐ Unknown☐
Responds to standard antimicrobial treatment	Yes☐ No☐ Unknown☐

Hospital Admission History

Has the case been admitted to a Hospital whilst symptomatic Yes☐ No☐ Unknown☐

If yes, Name of the hospital:---------- ward:--------- Other:----------

Date of admission to hospital: ----------/---------/---------

Has the case been in isolation	Yes☐ No☐ Unknown☐
Has the case been on mechanical ventilation	Yes☐ No☐ Unknown☐
Has the case been admitted to an Intensive Care Unit	Yes☐ No☐ Unknown☐
If not hospitalized, has the case been in home isolation	Yes☐ No☐ Unknown☐

History of exposure(3-14 DAYS BEFORE ILLNESS)

Did the patient have close contact with suspect/case of corona virus? Yes☐ No☐ Unknown☐

Did the case had contact with animals? Yes0 No0 Unknown0

If yes, what animal:---------- type of contact/duration:----------

Did the case visited seafood market? Yes☐ No☐ Unknown☐

If yes, what animal:---------- type of contact/duration:----------

Did the case had consume raw milk/ meat/sea food Yes☐ No☐ Unknown☐
If yes, when:----------

Did the patient deals with the following? animal trader☐ Slaughtering☐ milkier☐ Meat seller☐
Herder☐ butcher☐ veterinary☐ Camel rider☐ seafood dealer☐

Did the patient attend any mass gathering? *e.g.(party, other events*) Yes☐ No☐ Unknown☐

Is the patient smoker? Yes☐ No ☐ Unknown☐
Smoking type: Cigarettes☐ Nargghile☐ Sheesh ☐ Electronic Cigarettes☐

Did the patient travel abroad? Yes☐ No ☐ Unknown☐
If yes, please fill in the following:

Country/City	Departure	Arrival Date	Mode of travel

Is the patient health Care Worker?	☐ Yes ☐ No ☐ Unknown
Did the patient visit any health care facility the past 14 days before illness?	Yes ☐ No ☐ Unknown ☐
Dose the patient have regular visit to health care facility?	Yes ☐ No ☐ Unknown ☐
Did the patient visit somebody with respiratory illness?	Yes ☐ No ☐ Unknown ☐
Did the patient provide care for that person?	Yes ☐ No ☐ Unknown ☐
Was there any close contacts diagnosed with Noval Corona Virus infection?	Yes ☐ No ☐ Unknown ☐

Contact tracing

Has contact tracing been initiated Yes☐ No☐ Unknown☐

No of contacts☐

If yes, is any contact currently residing abroad Yes☐ No☐ Unknown☐

If yes, have the national Public Health Authorities of the recipient country been informed Yes☐ No☐ Unknown☐

Initial case classification ----------/---------/--------- *Confirmed*☐ *Probable*☐ *Discarded*☐

Please resubmit form when final case classification and the status is determined

Final case classification:----------/----------/---------- *Suspect* ☐ *Probable*☐ *Discarded* ☐

☐ Recovered, if the case was admitted to hospital Date of discharge:----------/----------/----------

☐ Died Date of death:----------/----------/----------

☐ Left country while symptomatic Medical evacuation Yes / No

Date of departure: ----------/----------/----------

Flight details:----------

Destination country:----------

☐ Lost to follow-up Date of loss----------/----------/----------

Name & Signature of PHS: ---------- Date:----------

Annex (5):Contact investigation

(5A): Household and Community Contacts of nCoV Case Management Surveillance

A close contact is defined as requiring greater than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or the sharing of a closed space with a symptomatic probable or confirmed case for a prolonged period (e.g. more than 2 hours).

Casual contact is defined as any person having less than 15 minutes face-to-face contact with a symptomatic confirmed case in any setting, or sharing a closed space with a symptomatic probable or confirmed case for less than 2 hours.

Contact of confirmed case

↓

Discuss the case with Public Health Consultants

Dr.Kubra S.Nasser
Dr afaf Mirza
Dr Ghada Alzayni

↓

Assign public Health Specialists for follow-up of the contacts:

- Identify close contacts.
- Enlist all information of the contacts (address, movement & contact telephone, etc).
- Ask & check for fever & symptoms for 14 days for asymptomatic contacts

Asymptomatic Contacts

- Close contacts of confirmed cases are subject to work and travel restrictions during the 14 days after last unprotected contact with a case
- Screening for nCoV is not generally required.
- In certain situations, nCoV screening may be considered:
  - If the exposed contact had intense exposure to the nCoV case (e.g. direct care, sleeping in same room..)
  - If exposed contact is Immunocompromised (e.g. cancer, organ failure, use of immunosuppressive medications) or has other chronic underlying conditions (e.g., diabetes, hypertension)
- RT-PCR-positive asymptomatic close contacts should be isolated, monitored closely for symptoms and only released from isolation following two negative RT-PCR tests separated by 24 hours
- Public health specialist should call the close contacts on daily bases for 14 days from their last exposure to the index case.
- Monitor for fever or respiratory symptoms or diarrhea and to provide clear instructions for the contacts in case they develop symptoms.
- Contacts who develop symptoms require MERS-CoV screening

Symptomatic Contacts

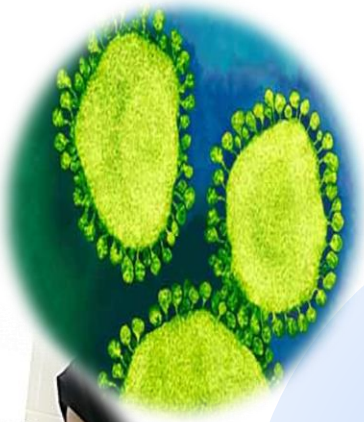
- Public health specialist should inform the health facility which will receive the suspected case.
- Instruct the patient to follow infection control measures while travelling to the health facility.
- Follow Suspected Case Surveillance Algorithm and referral to hospital

A close contact is defined as:

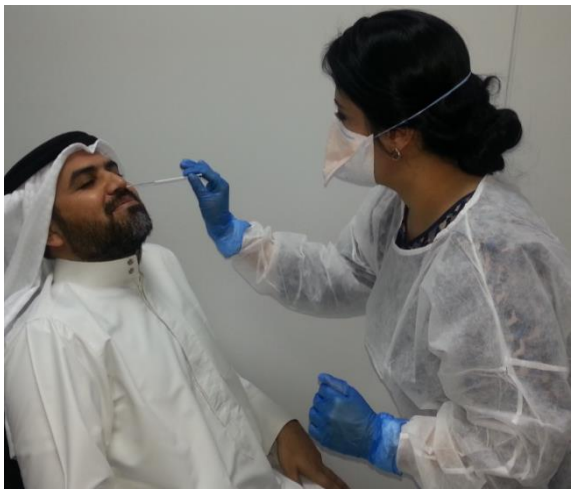
- Anyone who provided care for the patient or had a close physical contact (including family member, or anybody who had other similarly close physical contact)
- Working together in close proximity or sharing the same classroom environment
- Traveling together in any kind of conveyance
- Living in the same household

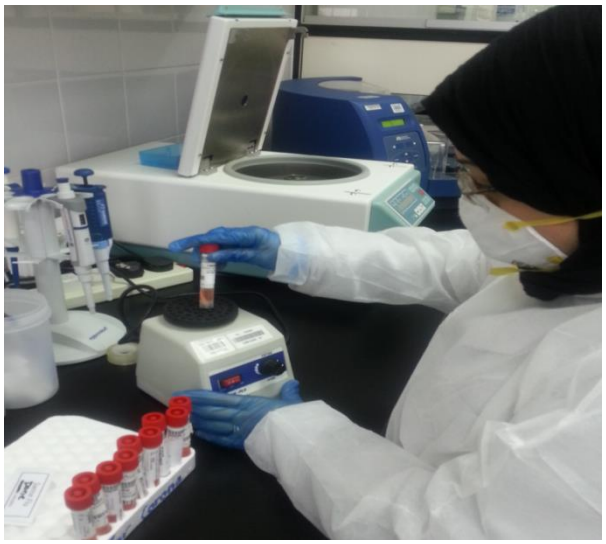
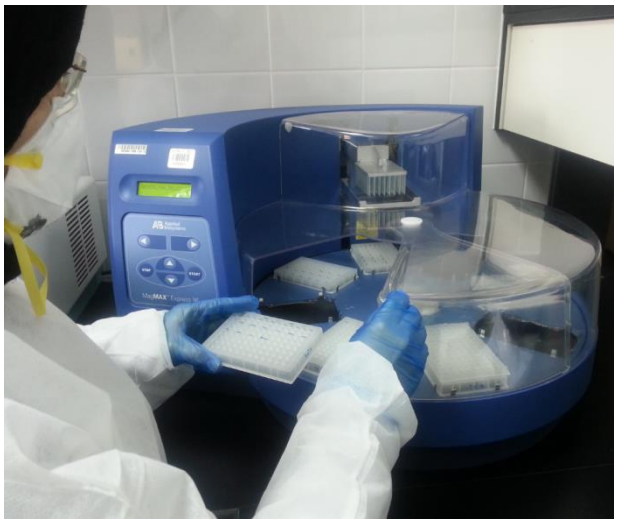
Healthcare workers contacts will be followed by infection control team

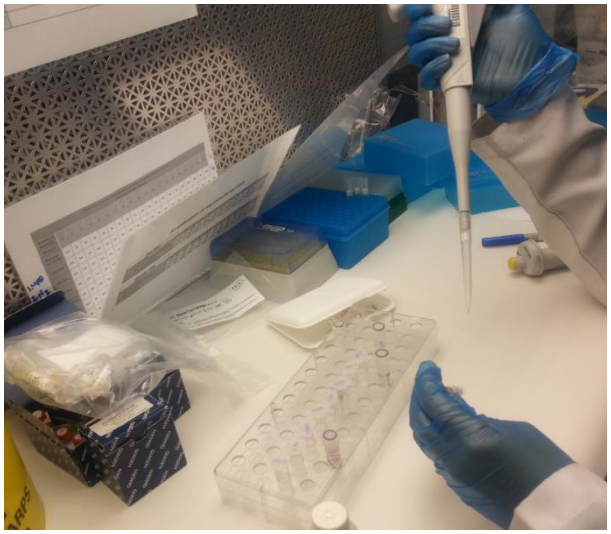
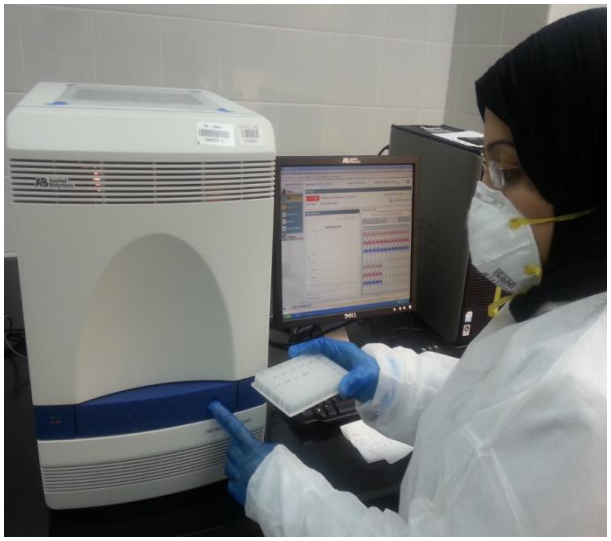
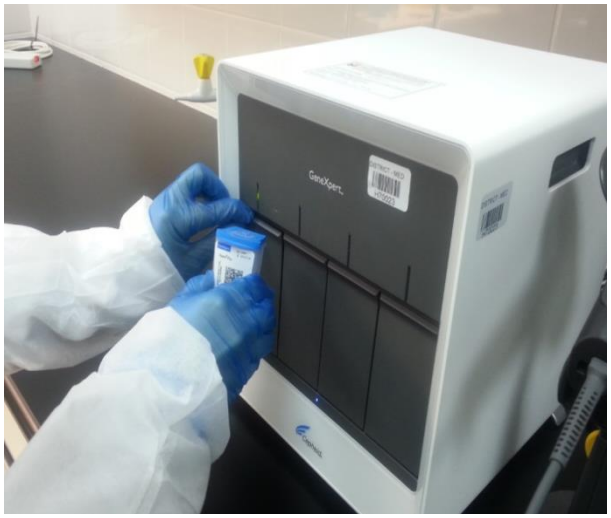
Annex (6): Laboratory Guidelines for the Collection and Transport of Suspected Novel Coronavirus Samples



Detection of nCoV in Public Health Laboratory

NO.	Step	Description
1		Collect Deep Tracheal Aspirate (DTA) or Nasopharyngeal swab
2		Transfer the sample in to Viral Transport Medium (VTM)
3		Transport the Sample to Public Health Laboratory Or Refrigerate specimen at 2-8°C up to 72 hours; if exceeding 72 hours, freeze at -70°C and ship on dry ice

4		Vortex the sample to homogenize the sample
5		Prepare sample for extraction
6		Load extraction plates in Mag-Max Semi- Automated Machine

7		Prepare the master mix for the detection of Corona Virus
8		To process PCR, load the amplification plate in ABI-Prism 7500 machine for target Detection and Amplification
9		Same sample will be processed for influenza PCR using GeneXpert machine where Flu A, Flu B and H1N1 can be detected.

Annex (7): Visual triaging Assessment checklist at A/E Samaniya Medical Complex

Visual Triage Assessment Checklist
نموذج التحقق من الفرز البصري

		Achieved or not	
1	There is designated triage area in ER for suspected MERS- CoV		يوجد منطقة فرز مخصصة في الطوارئ لحالات الاشتباه بفيروس كورونا
2	Triage personnel ask every patient about respiratory symptoms including fever, respiratory and gastrointestinal symptoms.		موظف الفرز يسأل كل مريض عن أعراضالاصابة مثل الحمى والاعراض التنفسية وأعراض الجهاز الهضمي
3	Visual triage forms applied		يتم استعمال نماذج الفرز المعتمدة
4	Face Mask available in ER entrance		أقنعة الوجه متوفرة في نقطة الفرز
5	Patients with fever or respiratory symptoms are instructed to wear face mask		يتم توجيه المرضىالذين يعانون من الحمى أو الأعراض التنفسية ارتداء قناع الوجه (الكمام الجراحي)
6	Persons accompanying ill patients with fever or respiratory symptoms are instructed to wear face mask.		يطلب من مرافقي المرضى المصابين بالحمى أو الاعراض التنفسية ارتداء قناع الوجه (الكمام الجراحي)
7	There is dedicated waiting area for patient with acute respiratory infection		هناك منطقة انتظار مخصصة للحالات المشتبهة اصابتهم
8	Visual signs for patients and visitors on recommended hand hygiene and respiratory hygiene/ Cough Etiquette practices are posted near ER entrance.		يوجد لوحات تثقيفية واضحة للمرضى في مدخل الطوارئ عن طريقة غسل وتطهير الأيدي و اداب السعال
Overall		8/8	**المجموع النهائي**

Annex 8 :PPE

HOW TO PUT ON AND TAKE OFF

Personal Protective Equipment (PPE)

World Health Organization

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 OR **Step 3b**
- Put on face shield.
- 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).

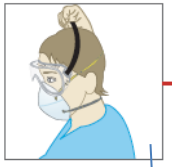
How to take off PPE

Step 1
- Avoid contamination of self, others & the environment
- Remove the most heavily contaminated items first

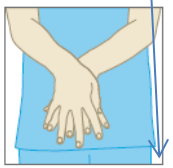
Remove gloves & gown
- Peel off gown & gloves and roll inside, out
- Dispose gloves and gown safely

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 9: Referral to SMC

Kingdom of Bahrain
Ministry of Health
Public Health Directorate

Human Infection with Novel Corona Virus (2019-nCoV)

Private Clinic/ Primary Health Care

Suspect Case /Isolate patient

⇩

Notify Public health through communicable disease hotline 66399868

⇩

Verification of the case with public health consultant

Dr Kubra32229393/DrGhada36720032/Dr Afaf 39429228

⇩

Check case definition

⇩

Fit case definition

⇩

Refer to A/E

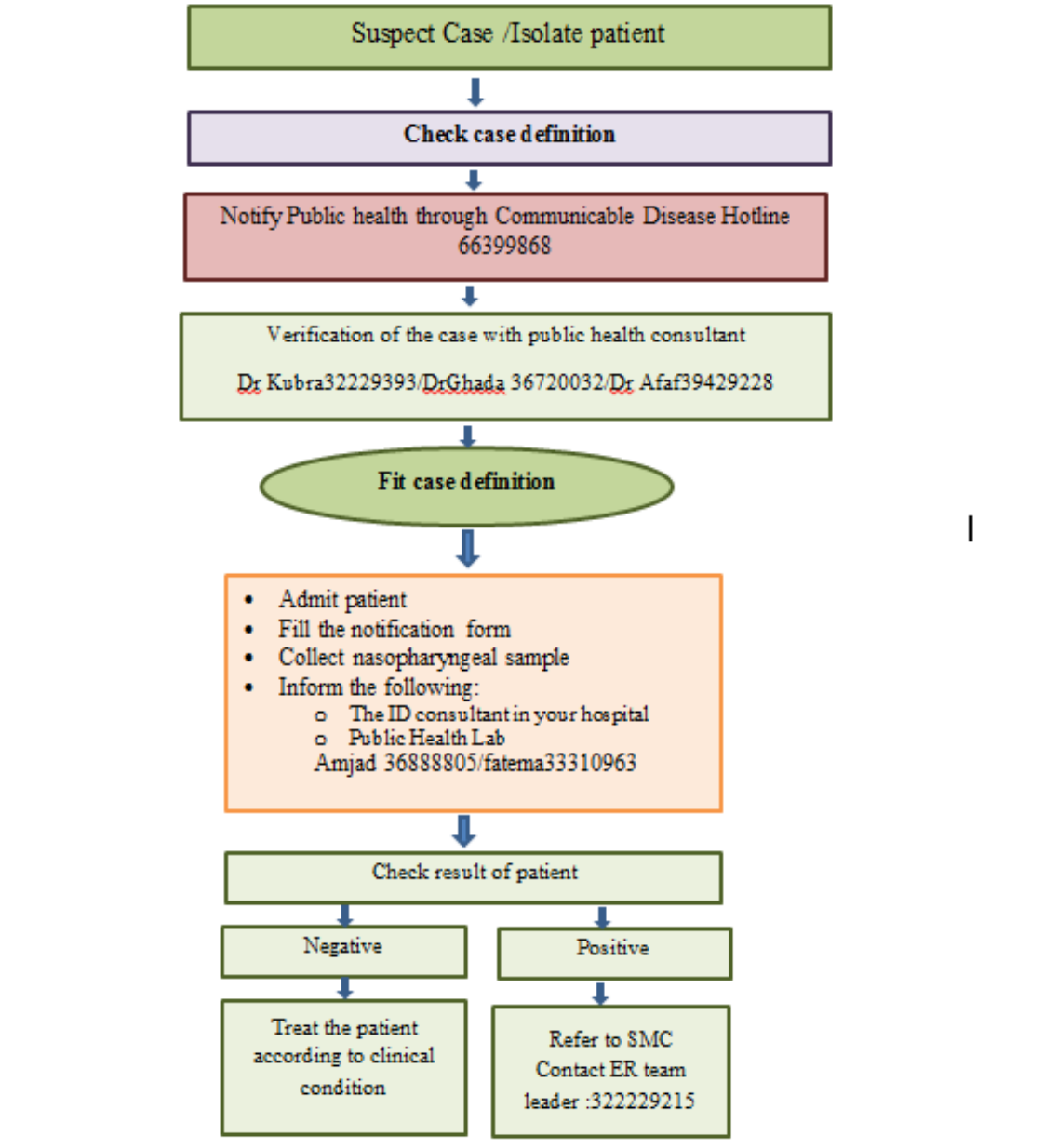
Inform A/E Team Leader T:322229215

⇩

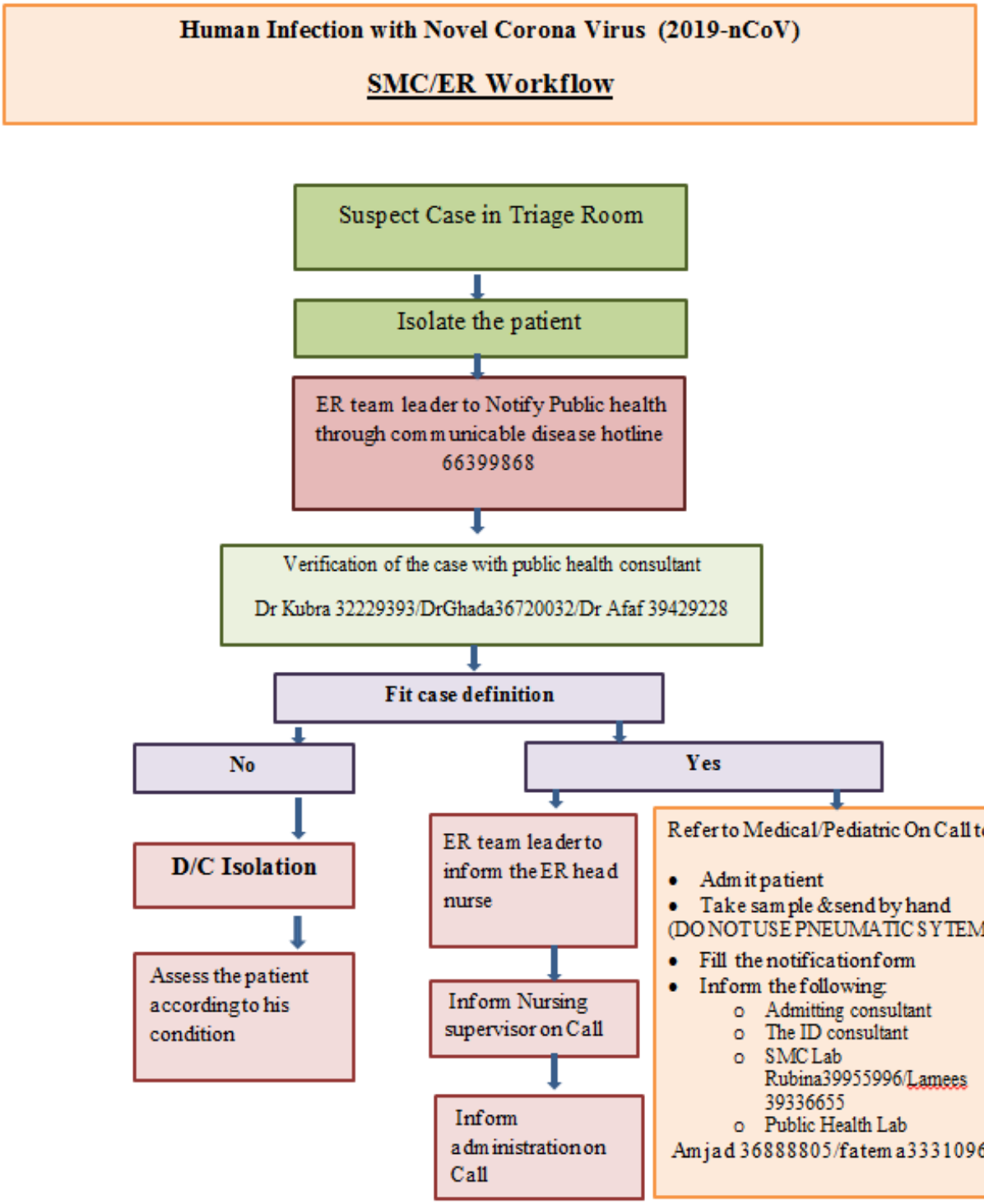
Follow SMC flow chart

Annex 9: Referral to SMC

Kingdom of Bahrain
Ministry of health
Public Health directorate



Annex 10
Annex: Suspected nCoV Surveillance Algorithm(For SMC)



Summary Guideline

Kingdom of Bahrain
Ministry of Health
Public Health Directorate

Human Infection with Novel Corona Virus (2019-nCoV)
Summary Guideline

Case definition

► 1- Individuals with fever
cough and shortness of breath of any severity who, within 14 days before onset of illness, **had any of the following exposures**:

a. A history of **travel to** China in the 14 days prior to symptom onset.
b. Close physical contact with a laboratory confirmed case of nCoV infection, while that patient was symptomatic.

Notify Public Health through Communicable Disease Group hotline Tel:66399868 → Notify Public Health consultant → Notify Public Health Director

Laboratory investigation:
Patient that fits the case definition should be screened for common respiratory illness and nCoV infection.

- Health care facility should arrange for sample collection (Nasopharyngeal or oropharyngeal swab, deep tracheal aspirate (DTA) or sputum).
- The sample should be sent to Public Health Laboratory.
- The case should be discussed and notified through Communicable Diseases Group hotline Tel:66399868

Infection prevention and control measures

- **Early recognition and source control.**
  - Initial screening of patient with Acute Respiratory Infection (ARI).
  - Suspected patient should be placed at the entry point of the emergency room.
- **Application of Standard Precautions for all patients.**
  - All identified ARI patients should be provided with surgical mask and should be kept in special designated waiting area.
- **Standard precautions should always be applied.**
- **Contact and Droplet precautions for suspected nCoV infection.**
  - Standard, contact and droplet precautions and airborne precautions are recommended. Avoid the movement of patients from isolation room unless medically necessary.
  - Personal Protective Equipment should be worn by Health Care Workers upon entry into patient rooms or care areas.
- **Airborne precautions for aerosol-generating procedures for suspected nCoV infection:**
  - Additional precautions should be observed when performing aerosol-generating procedures (AGP):
  - Environmental Cleaning and Disinfection

Thorough environmental cleaning and disinfection

Case Management
*There is no specific treatment or vaccines for the nCoV Infection
*Treatment is supportive based on the patient's clinical condition

Incident Command Contact	
Communicable Disease Hotline	66399868
Infection Control (ID consultant on call)	Dr Jameela Al-Salman 36515138/ Dr Safa Al-Khawaja 66331213
Public Health Consultant	Dr Kubra Nasser 32229393 Dr Ghada Al Zayani 36720032 Dr Afaf Merza 39429228
Public Health Laboratory	Mrs. Amjad AlGhanem 36888805 Mrs Fatema Shehab 33310963
Head of Emergency department	Dr Raed Al Marzooq 39304398
ER team leader	32229215
Primary care Team	Dr Hala Al Jassim 39454340 (Doctors) Mrs Waheeba Hasan 33322248 (Nurses)
Deputy chief of medical staff at SMC	Dr Salwa Al-Noaimi 36880441
Head of Immunization group	Dr Jaleela Sayed Jawad 39939980

Incident Command Contact	
Chief of disease control section	Dr Adel AlSayyad 33499599
Director of public health	Dr Najat Abulfateh 36666294
Assistant undersecretary of Public health	Dr Maryam Al-Hajeri 39671228