Algorithm for the Management of Suspected COVID-19 Cases in CARPHA Member States

Triage: recognize and sort all patients with Severe Acute Respiratory Infection (SARI) or Influenza-like illness (ILI) at first point of contact with health care system (such as the emergency department). Consider COVID-19 as a possible etiology of SARI\(^1\) under certain conditions.

Fever or Respiratory Illness

**Recent close contact with persons suspected to have COVID-19\(^1\) or recent exposure to locations with suspected or documented COVID-19 cases\(^4\)**

- **Yes**
  - Begin COVID-19 isolation precautions, initiate preliminary workup\(^5\), treat as clinically indicated, and notify health department.

- **No**
  - Perform laboratory COVID-19 testing (qPCR)\(^7\)
  - Laboratory confirmation of COVID-19
  - Alternative diagnosis confirmed\(^8\)
  - Consider discontinuing SARI isolation precautions\(^8\)

**Hospitalized with radiographic evidence of pneumonia**

- **Yes**
  - Consider alternative diagnosis and treat as clinically indicated\(^4\)

- **No**
  - Radiographic evidence of pneumonia\(^9\)
  - Perform COVID-19 testing\(^6\) Continue SARI isolation precautions until laboratory diagnosis confirms or not COVID-19

**Symptoms improve or resolve**

- Command COVID-19 isolation precautions\(^7\)
- Laboratory confirmation of COVID-19

**Treat as clinically indicated**

- **Yes**
  - Consider alternative diagnosis and treat as clinically indicated\(^4\)

**Contact Follow-up:** The National Public Health Authority should be advised of any suspected cases in order to carry out follow-up of any close contacts.

\(^1\)Clinical description of SARI: An Acute Respiratory Infection (ARI) with history of fever or measured temperature \(\geq 38^\circ\text{C}\) and cough; onset within the last 10 days; and requiring hospitalization. Influenza-like Illness (ILI) shows the same symptoms but does not require hospitalization. The absence of fever does NOT exclude viral infection.

\(^2\)Suspect case: A patient with severe acute respiratory illness (fever, and at least one sign/symptom of respiratory disease (e.g. cough, shortness of breath), and with no other etiology that fully explains the clinical presentation AND a history of travel to or residence in a country/area or territory reporting local transmission of COVID-19 during the last 14 days prior to symptom onset OR B. A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID-19 case (see definition of contact) in the last 14 days prior to the onset of symptoms OR C. A patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease, e.g. cough, shortness of breath) AND requiring hospitalization AND with no other etiology that fully explains the clinical presentation. Probable case: A suspect case for whom testing for COVID-19 is inconclusive. Confirmed case: A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

\(^3\)See CARPHA Situation Reports at http://carpha.org/What-We-Do/Public-Health/Novel-Coronavirus

\(^4\)Clinical work-up: Clinicians should work up patients as clinically indicated. Depending on symptoms and exposure history, initial management for patients with suspected COVID-19 may include: Complete blood count (CBC) with differential, chest radiograph, pulse oximetry, blood culture, sputum Gram’s stain and culture, testing for viral respiratory pathogens, notably influenza A and B and respiratory syncytial virus, or Legionella and pneumococcal urinary antigen testing if radiographic evidence of pneumonia (adults only). Acute clinical specimens (nasopharyngeal and oropharyngeal swabs) in ambulatory and hospitalized patients and sputum (if produced) and/or endotracheal aspirate or bronchoalveolar lavage in patients with more severe respiratory disease; should be taken for testing. COVID-19 testing may be considered as part of the initial work-up if there is a high level of suspicion for it based on exposure/travel history. For additional details see WHO Interim Guidance Laboratory testing for 2019 novel coronavirus disease (2019-nCoV) in suspected human cases https://www.who.int/publications-detail/labouratory-testing-for-2019-novel-coronavirus-in-suspected-human-cases-20200117 and CDC’s Coronavirus Disease 2019 (COVID-19) website https://www.cdc.gov/coronavirus/2019-ncov/about/testing.html for specialized laboratory testing options available through the Laboratory Response Network (LRN).

\(^5\)Alternative diagnosis: In some settings, Polymerase Chain Reaction (PCR) testing for other bacterial and viral pathogens can also be used to help establish alternative diagnoses. The presence of an alternative diagnosis does not necessarily rule out co-infection.

\(^6\)qPCR: A real-time polymerase chain reaction (real-time PCR), also known as quantitative polymerase chain reaction (qPCR), is a laboratory technique of molecular biology based on the polymerase chain reaction (PCR). It monitors the amplification of a targeted DNA molecule during the PCR (i.e., in real time), therefore, to amplify COVID-19 genome only acute samples (where the virus is present) are needed. To date, serology or rapid tests have no reliable positive predictive value, sensitivity and specificity.

\(^7\)Discontinuation of COVID-19 isolation precautions: COVID-19 isolation precautions should be discontinued only after consultation with the local public health authorities and the evaluating clinician. Factors that might be considered include the strength of the epidemiologic exposure to COVID-19, the nature of contact with others in the residential or work setting, the strength of evidence for an alternative diagnosis, or the confirmation of an alternative diagnosis, and evidence for clustering of pneumonia among close contacts. Isolation precautions should be discontinued on the basis of an alternative diagnosis only when the following criteria are met: (1) Absence of strong epidemiologic link to known cases of COVID-19 (2) Alternative diagnosis confirmed (3) Clinical manifestations entirely explained by the alternative diagnosis (4) No evidence of clustering of pneumonia cases among close contacts (unless >1 case in the cluster is confirmed to have the same alternative diagnosis) (5) All cases of presumed COVID-19 identified in the surrounding community can be epidemiologically linked to known cases or locations in which transmission is known to have curbed.

\(^8\)Radiographic testing: Chest CT and chest radiograph (CXR) may show evidence of an infiltrate and can be useful for the diagnosis and management of pneumonia. Therefore, either or both methods should be considered, if available, in confirmed patients for COVID-19 or in those with a strong epidemiologic link to a known case of COVID-19 to evaluate the evolution of pneumonia and pulmonary recovery.