
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 under certain conditions. Triage patients and start emergency treatments based on disease severity.

**Fever or Respiratory Illness**

1. Recent close contact with persons suspected to have COVID-19 or recent exposure to locations with suspected or documented COVID-19 cases³
2. Hospitalized with radiographic evidence of pneumonia
3. Continue COVID-19 isolation precautions until 14 days following resolution of fever and absence of respiratory symptoms
4. Consider alternative diagnosis and treat as clinically indicated
5. Radiographic evidence of pneumonia
6. Consider discontinuing COVID-19 isolation precautions
7. Perform COVID-19 testing
8. Laboratory confirmation of COVID-19
9. Alternative diagnosis confirmed

**Yes**

1. Begin COVID-19 isolation precautions, initiate preliminary workup, treat as clinically indicated, and notify health department
2. Consider discontinuing SARI isolation precautions
3. Radiographic evidence of pneumonia
4. Laboratory confirmation of COVID-19
5. Continue SARI isolation precautions until 14 days following resolution of fever and respiratory symptoms are absent or resolving

**No**

1. Perform laboratory COVID-19 testing (qPCR)⁷
2. Laboratory confirmation of COVID-19
3. Symptoms improve or resolve

**Clinical description of SARI:** An Acute Respiratory Infection (ARI) with history of fever or measured temperature ≥38°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.

**Contact follow-up:** The National Public Health Authority should be advised of any suspected cases in order to carryout follow-up of any case contacts.

**Surveillance case definitions for COVID-19**

**Suspected case (A or B):** A person who meets the clinical AND epidemiological criteria: Clinical criteria: 1. Acute onset of fever AND cough; OR 2. Acute onset of ANY THREE OR MORE of the following signs or symptoms: fever, cough, general weakness/fatigue, headache, myalgia, sore throat, coryza, dyspnoea, anosmia/nausea/vomiting, diarrhoea, altered mental status. AND Epidemiological criteria: 1. Residing or working in an area with high risk of transmission of the virus: for example, closed residential settings and humanitarian settings, such as camp and camp-like settings for displaced persons, any time within the 14 days prior to symptom onset; OR 2. Residing in or traveling to an area with community transmission anytime within the 14 days prior to symptom onset; OR 3. Working in health setting, including within health facilities and within households, anytime within the 14 days prior to symptom onset. **B.** A patient with severe acute respiratory illness (SARI: acute respiratory infection with history of fever or measured fever of ≥ 38°C; and cough; with onset within the last 10 days; and who requires hospitalization). **Probable case:** A person who meets clinical criteria above AND is a contact of a probable or confirmed case, or epidemiologically linked to a cluster of cases which has had at least one confirmed case identified within that cluster. **B.** A suspected case (described above) with chest imaging showing findings suggestive of COVID-19 disease. Typical chest imaging findings suggestive of COVID-19 include the following (Manna 2020): - chest radiography: hazy opacities, often rounded in morphology, with peripheral and lower lung distribution - chest CT: multiple bilateral ground glass opacities, often rounded in morphology, with peripheral and lower lung distribution - lung ultrasound: thickened pleural lines, B lines (multifocal, discrete, or confluent), consolidative patterns with or without air bronchograms. **C.** A person with recent onset of anosmia (loss of smell) or ageusia (loss of taste) in the absence of any other identified cause. **D.** Death, not otherwise explained, in an adult with respiratory distress preceding death AND who was a contact of a probable or confirmed case or epidemiologically linked to a cluster which has had at least one confirmed case identified within that cluster. **Confirmed case:** A person with laboratory confirmation of COVID-19 (any diagnostic test) irrespective of clinical signs and symptoms.

See CARPHA Situation Reports at http://carpha.org/What-We-Do/Public-Health/New-Coronavirus.

**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/laboratory-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).

**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.

**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.

**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.

³Discontinuation 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 disease, 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) in essence of strong epidemiologic link to known cases of COVID-19 (alternative diagnosis confirmed) (2) Clinical manifestations entirely explained by the alternative diagnosis (3) No evidence of clustering of pneumonia cases among close contacts (unless 1 case in the cluster is confirmed to have the same alternative diagnosis) (4) 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 occurred.