

## Screening, Triage and Clinical Syndromes Associated with COVID-19

\***Mohammad Samiul Islam<sup>1</sup>, Dr. Taslima Islam<sup>2</sup>, Syed Nazmul Huda<sup>3</sup>, TahaninTahar Omey<sup>4</sup>, Mst Airen Akter<sup>5</sup>, SM Ashibur Hasnat<sup>6</sup>**

<sup>1</sup> PhD student, Department of Agribusiness and Bio-resource Economics, Faculty of Agriculture, University Putra Malaysia (UPM), Serdang, 43400, Malaysia, E-mail: [msamiul.islam@irri.org](mailto:msamiul.islam@irri.org)

<sup>2</sup> Livestock Extension Officer (LEO), Trishal Upazila, Mymensingh, Ministry of Livestock and Fisheries, Dhaka, Bangladesh. Email: [dr.taslima91@gmail.com](mailto:dr.taslima91@gmail.com)

<sup>3</sup> Lecturer of Accounting, Bangamata Sheikh Fojilatunnesa Mujib Science & Technology University, Jamalpur-2000, Bangladesh. E-mail: [nazmulaub@hotmail.com](mailto:nazmulaub@hotmail.com)

<sup>4,5,6</sup> Faculty of Economics and Management, University Putra Malaysia (UPM), Serdang, 43400, Malaysia, E-mail: [omey22597@gmail.com](mailto:omey22597@gmail.com), [airen.asha37@gmail.com](mailto:airen.asha37@gmail.com), [ahssadi01@gmail.com](mailto:ahssadi01@gmail.com)

\*Corresponding author



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**Abstract:** Ecological change, atmosphere warming, populace thickness increment, high relocation movement of the populace and different elements incite the development and spread of new diseases around the globe. The development in December 2019 of illnesses brought about by the new coronavirus («coronavirus infection 2019») has just stood out forever as a crisis of global significance. It is realized that the most widely recognized clinical appearance of another contamination is pneumonia, and furthermore in a huge piece of patient's respiratory pain disorder. Our article gives a short explanatory audit of these brief rules of World Health Organization (WHO) and other distributed sources about clinical classification and triage of a New Coronavirus Infection (COVID-19). The group of creators communicates the expectation that this information will be valuable to specialists in furnishing clinical consideration to patients with another coronary infection disease, just as to educators in getting ready understudies and inhabitants. Serious intense respiratory sickness with fever and respiratory indications, for example, hack and brevity of breath, include the working case definition used to choose individuals for viral testing. This system catches average suggestive introduction, yet defectively recognizes strange appearances, for example, patients without respiratory indications or truth be told, exceptionally gentle side effects. One generally referred to demonstrating study presumed that up to 86% of cases might have been missed in China, also, reports of patients with irregular introducing side effects are rising around the world.

**Keywords:** COVID-19, Triage, SARI, ARDS

## **Introduction**

Coronavirus sickness 2019 (COVID-19) is a respiratory tract disease brought about by a recently rising coronavirus, that was first perceived in Wuhan, China, in December 2019. Hereditary sequencing of the infection proposes that it is a betacoronavirus firmly connected to the SARS infection (1).

While a great many people with COVID-19 grow just gentle or simple ailment, roughly 14% create extreme ailment that requires hospitalization and oxygen support, and 5% expect admission to an emergency unit). In extreme cases, COVID-19 can be confused by the intense respiratory misery condition (ARDS), sepsis and septic stun, multiorgan disappointment, including intense kidney injury and cardiovascular injury (2). More established age and co- dismal sickness have been accounted for as hazard factors for death, and late multivariable examination affirmed more seasoned age, higher Sequential Organ Failure Assessment (SOFA) score and d-dimer  $> 1 \mu\text{g/L}$  on affirmation were related with higher mortality. This examination additionally watched a middle term of viral RNA location of 20.0 days (IQR 17.0–24.0) in survivors, however COVID-19 infection was recognizable til' the very end in non-survivors. The longest watched term of viral shedding in survivors was 37 days (3, 4).

Expanding on proof educated rules created by a multidisciplinary board of social insurance suppliers with involvement with the clinical administration of patients with COVID-19 and other viral diseases, including SARS and MERS, just as sepsis and ARDS, this direction should fill in as an establishment for enhanced strong consideration to guarantee the most ideal possibility for endurance and to take into account solid correlation of investigational helpful mediations as a major aspect of randomized controlled preliminaries (5, 6).

The phylogenetic investigation of the infection showed that 2019-nCoV is a beta-coronaviruses like serious intense respiratory disorder coronavirus (SARS-CoV) and Middle East respiratory condition coronavirus (MERS-CoV). The total genomic arrangement of 2019-nCoV is most firmly identified with bat-SL-CoVZC45 and another beta-coronavirus of bat inception, bat-SL- CoVZXC21. On February 11, the International Committee on Taxonomy of Viruses (ICTV)

reported the new official name of the infection that causes COVID-19 as Severe Acute Respiratory Syndrome coronavirus 2 or SARS-CoV-2. The clinical image of SARS-CoV-2 is to a great extent like SARS-CoV. The early clinical appearances incorporate fever, non-beneficial hack, myalgias, loose bowels, dyspnea, queasiness and regurgitating. Research center discoveries give proof of disease including lymphopenia, thrombocytopenia, raised C responsive protein, liver catalyts, blood urea nitrogen, creatinine and lactate dehydrogenase (LDH) levels. On chest CT patients show ground-glass haziness and different penetrates. Patients having a basic issue present with serious clinical results and require cautious checking and treatment. Different confusions are accounted for including intense respiratory misery condition (ARDS), intense respiratory ailment (ARD), respiratory disappointment, kidney disappointment, and cytokine storm prompting passing.

### **Screening, triage and clinical syndromes: early recognition of patients with SARI associated with COVID-19**

Screening and triage: Screen and disconnect all patients with suspected COVID-19 at the main purpose of contact with the human services framework, (for example, the crisis division or outpatient office/facility). Consider COVID-19 as a potential etiology of patients with intense respiratory disease under specific conditions (see Table 1). Triage patients utilizing normalized triage devices and start first-line medicines.

Comment 1: Although most of individuals with COVID-19 have simple or mellow disease (81%), some will create extreme sickness requiring oxygen treatment (14%) and around 5% will require emergency unit. Of those basically sick, most will require mechanical ventilation (2, 10). The most widely recognized conclusion in serious COVID-19 patients is extreme pneumonia.

Comment 2: Early acknowledgment of associated patients takes into account auspicious commencement with fitting IPC measures (see Table 3). Early recognizable proof of those with extreme ailment, for example, serious pneumonia (see Table 2), considers advanced strong consideration medications and sheltered, quick referral and admission to an assigned emergency clinic ward or emergency unit to institutional or national conventions.

Comment 3: Older patients and those with comorbidities, for example, cardiovascular malady

and diabetes mellitus, have expanded danger of extreme infection and mortality. They may give mellow side effects however have high danger of decay and ought to be admitted to an assigned unit for close checking.

Comment 4: For those with mellow ailment, hospitalization may not be required except if there is worry about fast decay or a powerlessness to immediately come back to emergency clinic, however detachment to contain/moderate infection transmission ought to be organized. All patients thought about outside medical clinic (for example at home or non-customary settings) ought to be told to oversee themselves fittingly as indicated by neighborhood/local general wellbeing conventions for home separation and come back to an assigned COVID-19 emergency clinic on the off chance that they deteriorate ([https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-\(ncov\)-infection-presenting-with-mild-symptoms-and-management-of-contacts](https://www.who.int/publications-detail/home-care-for-patients-with-suspected-novel-coronavirus-(ncov)-infection-presenting-with-mild-symptoms-and-management-of-contacts)). However the definition of SARI and surveillance case definitions and clinical syndromes associated with COVID-19 are presented in Table 1 and Table 2.

**Table 1. Definitions of SARI and surveillance case definitions for COVID-19\***

<b>Surveillance case definitions for COVID-19*</b>	<b>Suspect case</b>
	See latest WHO case definitions for suspect case of COVID-19*
	<b>Confirmed case</b>
	A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

**Table 2. Clinical syndromes associated with COVID-19**

Mild illness	Patients uncomplicated upper respiratory tract viral infection may have non-specific symptoms such as fever, fatigue, cough (with or without sputum production), anorexia, malaise, muscle pain, sore throat, dyspnea, nasal congestion, or headache. Rarely, patients may also present with diarrhoea,
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nausea, and vomiting (3, 11-13).

The elderly and immunosuppressed may present with atypical symptoms. Symptoms due to physiologic adaptations of pregnancy or adverse pregnancy events, such as dyspnea, fever, GI-symptoms or fatigue, may overlap with COVID-19 symptoms.

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Pneumonia

**Adult** with pneumonia but no signs of severe pneumonia and no need for supplemental oxygen.

**Child** with non-severe pneumonia who has cough or difficulty breathing + fast breathing: fast breathing (in breaths/min):

< 2 months:  $\geq 60$ ; 2–11 months:  $\geq 50$ ; 1–5 years:  $\geq 40$ , and no signs of severe pneumonia.

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Severe pneumonia

**Adolescent or adult:** fever or suspected respiratory infection, plus one of the following: respiratory rate  $> 30$  breaths/min; severe respiratory distress; or SpO<sub>2</sub>  $\leq 93\%$  on room air (adapted from 14).

**Child** with cough or difficulty in breathing, plus at least one of the following: central cyanosis or SpO<sub>2</sub>  $< 90\%$ ; severe respiratory distress (e.g. grunting, very severe chest in drawing); signs of pneumonia with a general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions (15). Other signs of pneumonia may be present: chest in drawing, fast breathing (in breaths/min):  $< 2$  months:  $\geq 60$ ; 2–11 months:  $\geq 50$ ; 1–5 years:  $\geq 40$  (16). While the diagnosis is made on clinical grounds; chest imaging may identify or exclude some pulmonary complications.

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Acute respiratory distress syndrome (ARDS) (17-19)

**Onset:** within 1 week of a known clinical insult or new or worsening respiratory symptoms.

**Chest imaging** (radiograph, CT scan, or lung ultrasound): bilateral opacities, not fully explained by volume overload, lobar or lung

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collapse, or nodules.

**Origin of pulmonary infiltrates:** respiratory failure not fully explained by cardiac failure or fluid overload. Need objective assessment (e.g. echocardiography) to exclude hydrostatic cause of infiltrates/oedema if no risk factor present.

**Oxygenation impairment in adults (17, 19):**

- Mild ARDS:  $200 \text{ mmHg} < \text{PaO}_2/\text{FiO}_2 \leq 300 \text{ mmHg}$  (with PEEP or CPAP  $\geq 5 \text{ cmH}_2\text{O}$ , or non-ventilated)
- Moderate ARDS:  $100 \text{ mmHg} < \text{PaO}_2/\text{FiO}_2 \leq 200 \text{ mmHg}$  (with PEEP  $\geq 5 \text{ cmH}_2\text{O}$ , or non-ventilated)
- Severe ARDS:  $\text{PaO}_2/\text{FiO}_2 \leq 100 \text{ mmHg}$  (with PEEP  $\geq 5 \text{ cmH}_2\text{O}$ , or non-ventilated)
- When  $\text{PaO}_2$  is not available,  $\text{SpO}_2/\text{FiO}_2 \leq 315$  suggests ARDS (including in non-ventilated patients).

**Oxygenation impairment in children:** note OI = Oxygenation Index and OSI = Oxygenation Index using  $\text{SpO}_2$ . Use  $\text{PaO}_2$ - based metric when available. If  $\text{PaO}_2$  not available, wean  $\text{FiO}_2$  to maintain  $\text{SpO}_2 \leq 97\%$  to calculate OSI or  $\text{SpO}_2/\text{FiO}_2$  ratio:

- Bilevel (NIV or CPAP)  $\geq 5 \text{ cmH}_2\text{O}$  via full face mask:  $\text{PaO}_2/\text{FiO}_2 \leq 300 \text{ mmHg}$  or  $\text{SpO}_2/\text{FiO}_2 \leq 264$
- Mild ARDS (invasively ventilated):  $4 \leq \text{OI} < 8$  or  $5 \leq \text{OSI} < 7.5$
- Moderate ARDS (invasively ventilated):  $8 \leq \text{OI} < 16$  or  $7.5 \leq \text{OSI} < 12.3$

Severe ARDS (invasively ventilated):  $\text{OI} \geq 16$  or  $\text{OSI} \geq 12.3$ .

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Sepsis (5, 6)

**Adults:** life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection's Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output (5, 20), 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  $\geq 2$  age-based systemic inflammatory response syndrome criteria, of which one must be abnormal temperature or white blood cell count.

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Septic shock (5, 6)

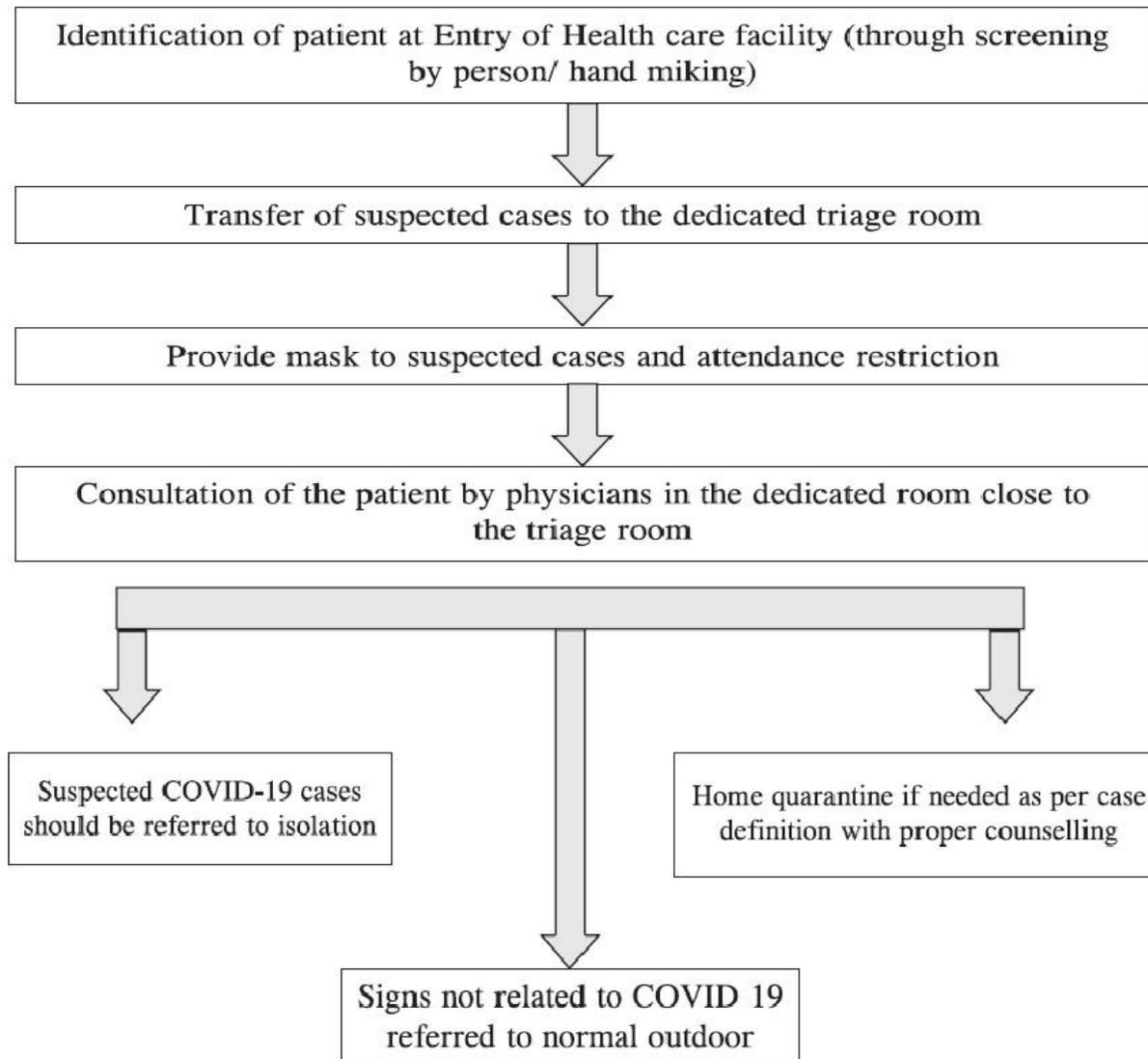
**Adults:** persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP  $\geq 65$  mmHg and serum lactate level  $> 2$  mmol/L.

**Children:** any hypotension (SBP  $< 5$ th centile or  $> 2$  SD below normal for age) or two or three of the following: altered mental state; tachycardia or bradycardia (HR  $< 90$  bpm or  $> 160$  bpm in infants and HR  $< 70$  bpm or  $> 150$  bpm in children); prolonged capillary refill ( $> 2$  sec) or feeble pulse; tachypnoea; mottled or cool skin or petechial or purpuric rash; increased lactate; oliguria; hyperthermia or hypothermia (21).

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Total flow chart for triage of COVID-19 and preparation at healthcare facility are described systematically herewith. In order to reduce the infected rate of COVID-19 each healthcare organization need to apply these triage and preparation for ensuring positive and secure healthcare facility to patients and healthcare staffs. In the provided flow diagram, the proper procedure is stated to maintain distance, personal safety, hospital safety and so on to fight with COVID-19 infection.

## Total Flow Chart of Triage of COVID 19

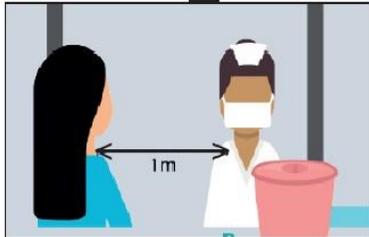


## Preparation at Healthcare Facility

### TRIAGE

#### Triage Station

Healthcare Facility Entrance



Prior to any waiting area, Screen patients for COVID-19 and Measure temperature

Be alert for anyone that may have symptoms such as cough, fever, shortness of breath, and difficulty breathing.

#### Personal Protection at the Triage station

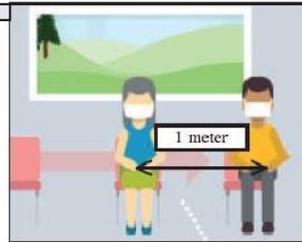
Staff should wear appropriate personal protective equipment at the triage station.

Provide medical masks to all patients presenting with flulike symptoms or reporting possible COVID-19 infection

Remind all patients to use good respiratory and hand hygiene

Have alcohol-based hand rub or soap and water, hand washing stations readily available for the use of healthcare workers, patients and visitors.

#### Waiting Area



Prepare a well-defined and separate waiting area for suspected covid 19 infection cases.

- Ensure that all patients cover their nose and mouth with a tissue or elbow when coughing or sneezing;
- Offer a medical mask to patients with suspected 2019-nCoV infection while they are in waiting/public areas or in cohorting rooms;
- Perform hand hygiene after contact with respiratory secretions

## Conclusion

Clinical signs of COVID-19 are different, imitating those of pneumonia and regularly giving fever, hack, myalgias, weariness, and less ordinarily with the runs and regurgitating. Introducing side effects in pregnant females are additionally like those of non-pregnant females. COVID-19 contamination is affirmed by radiologic and research facility discoveries. The pneumonia logically forms into extreme intense respiratory contamination, intense respiratory pain condition, intense respiratory disappointment, hepatic injury, kidney disappointment and cardiovascular confusions. Brief organization of anti-microbials in people with diminished insusceptible capacity, for example, diabetics, more seasoned individuals, patients with HIV, patients utilizing immunosuppressive medications, and pregnant females reinforce resistant capacity lessening complexities and mortality. Patients with fundamental ceaseless infections show poor results with treatment and result in extreme and deadly maladies.

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