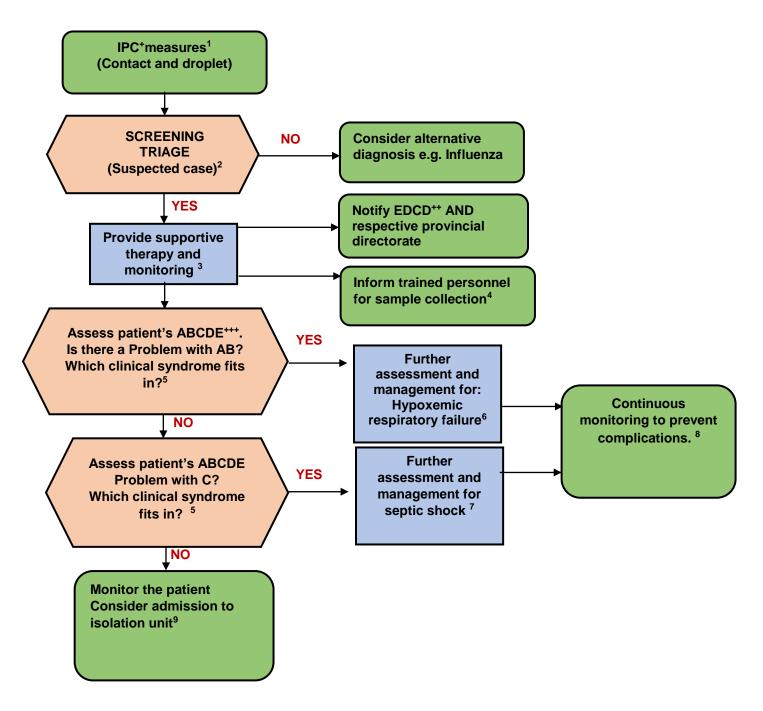
Table of Contents

CLINICAL APPROACH TO A PATIENT WITH SUSPECTED COVID-19	2
Table 1. Infection control measures: how to implement	3
Table 2: Suspected Case*	3
Table 3. Definitions of clinical syndromes associated with COVID_19	4
Table 4. Specimen collection	4
Table 5. Early supportive therapy and monitoring	5
Table 6. Management for Hypoxemic respiratory failure and Acute respiratory distress syndrome	5
Table 7. Management for septic shock	6
Annex 1: Hand Rub	9
Annex 2: Hand Washing	10
Annex 3: Personal Protective Equipment (PPE)	11
Annex 4: COVID19 reporting form	12
Annex 5: Form for specimen transferal to NPHL	15
List of contributors in the preparation of this guideline	16

CLINICAL APPROACH TO A PATIENT WITH SUSPECTED COVID-19

Adapted from: WHO Interim guidance for COVID19 - 15 March 2020



*IPC: Infection prevention control; **EDCD: Epidemiology and Disease Control Division ;***ABCDE: Airway/Breathing/Circulation/Disability/Expose.

PLEASE REFER TO CORRESPONDING NUMBERED TABLES FOR FURTHER INFORMATION

Table 1. Infection control measures: how to implement

Standard precautions	Apply routinely in all health-care settings for all patients. Standard precautions include: hand hygiene and use of personal protective equipment (PPE) to avoid direct contact with patients' blood, body fluids, secretions (including respiratory secretions) and non-intact skin. When providing care in close contact with a patient with respiratory symptoms (e.g. coughing or sneezing), use eye protection, because sprays of secretions may occur. Standard precautions include: prevention of needle-stick or sharps injury; safe waste management; cleaning and disinfection of equipment; and
Droplet precautions	Cleaning of the environment. Use a medical mask if working within 1 meter of the patient. Place patients in single rooms, or group together those with the same etiological diagnosis. If an etiological diagnosis is not possible, group patients with similar clinical diagnosis and based on epidemiological risk factors, with a spatial separation of at least 1 meter. Limit patient movement and ensure that patients wear medical masks when outside their rooms.
Contact precaution	Use PPE (medical mask, eye protection, gloves and gown) when entering room and remove PPE when leaving. If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use. Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands. Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches). Ensure adequate room ventilation. Avoid movement of patients or transport. Perform hand hygiene.
Airborne precautions	Ensure that healthcare workers performing aerosol-generating procedures use PPE, including gloves, long-sleeved gowns, eye protection and particulate respirators (N95 or equivalent). Whenever possible, use adequately ventilated single rooms when performing aerosol-generating procedures.

Table 2: Suspected Case*

A. a patient with acute respiratory illness (that is, fever and at least one sign or symptom of respiratory disease, for example, cough or 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 that has reported local transmission of COVID-19 disease during the 14 days prior to symptom onset **OR**

B. a patient with any acute respiratory illness AND who has been a contact of a confirmed or probable case of COVID-19 disease during the 14 days prior to the onset of symptoms (see the definition of contact below);

OR

C. a patient with severe acute respiratory infection (that is, fever and at least one sign or symptom of respiratory disease, for example, cough or shortness breath) AND who requires hospitalization AND who has no other etiology that fully explains the clinical presentation.

^{*}To align with national updated case definition

Table 3. Definitions of clinical syndromes associated with COVID_19

Probable case	A probable case is a suspected case for whom the report from laboratory						
	testing for the COVID-19 virus is inconclusive.						
Conformed case	A confirmed case is a person with laboratory confirmation of infection with the						
	COVID-19 virus, irrespective of clinical sign and symptoms.						
Severe pneumonia	Adolescent or adult patient with fever or suspected infection, cough,						
	respiratory rate > 30 breaths/min, severe respiratory distress, oxygen saturation (SpO2) < 90% on room air.						
Acute Respiratory	Onset: acute, i.e. within 1 week of known clinical insult or new or worsening						
Distress Syndrome	respiratory symptoms						
Jien des Cymarems	Chest imaging (e.g. X-ray or CT scan): bilateral opacities, not fully explained						
	by effusions, lobar/lung collapse or nodules Origin of pulmonary edema: respiratory failure not fully explained by cardiac failure or fluid overload						
	Degree of hypoxemia: 200 mm Hg < PaO2/FiO2 ≤ 300 mm Hg with PEEP or CPAP						
	≥ 5 cm H2O (mild ARDS); 100 mm Hg < PaO2/FiO2 ≤ 200 mm Hg with PEEP ≥ 5 cm H2O (moderate ARDS); PaO2/FiO2 ≤ 100 mm Hg with PEEP ≥ 5 cm H2O (severe ARDS). When PaO2 is not available, an SpO2/FiO2 ratio ≤ 315 suggests ARDS.						
Sepsis	Documented or suspected infection, with two or more of the following conditions: temperature > 38 °C (100.4 °F) or < 36 °C (96.8 °F), HR > 90/min, RR > 20/min or PaCO2 < 32 mm Hg, white blood cells > 12 000 or < 4000/mm3 or > 10% immature (band) forms.						
Severe sepsis	Sepsis associated with organ dysfunction, hypoperfusion (lactic acidosis) or hypotension. Organ dysfunction may include oliguria, acute kidney injury, hypoxemia, transaminitis, coagulopathy, thrombocytopenia, altered mental status, ileus or hyperbilirubinemia.						
Septic shock	Sepsis-induced hypotension (SBP < 90 mm Hg) despite adequate fluid resuscitation and signs of hypoperfusion.						

SpO2, oxygen saturation; PaO2, partial pressure of oxygen; FiO2, fraction of inspired oxygen; CPAP, continuous positive airway pressure; PEEP, positive end-expiratory pressure; HR, heart rate; RR, respiratory rate; PaCO2, partial pressure of carbon dioxide; SBP, systolic blood pressure. Table adapted from (3).

Table 4. Specimen collection

Please send the completed COVID surveillance form with the sample.

Use PPE: Airborne precaution

Specimens to be collected At minimum, respiratory material should be collected:

- upper respiratory specimens: nasopharyngeal and oropharyngeal swab or wash in ambulatory patients [1].
- and/or lower respiratory specimens: sputum (if produced) and/or endotracheal aspirate or bronchoalveolar lavage in patients with more severe respiratory disease. (Note high risk of aerosolization; adhere strictly to infection prevention and control procedures).

Specimens which can be delivered promptly to the laboratory can be stored and shipped at 2-8°C with triple packaging.

When there is likely to be a delay in specimens reaching the laboratory by 24 hours, the use of viral transport medium is strongly recommended. Specimens may be frozen to - 20°C or ideally -70°C

Inform NPHL before collecting and sending sample (Annex 5)
Contact Number: 9851168220 (Dr. Shrawan K Mishra), 9827701465 (Dr. Ranjit Shah)

Table 5. Early supportive therapy and monitoring

Give supplemental oxygen therapy immediately to patients with SARI and respiratory distress, hypoxemia, or shock.(target SpO2 ≥90% in adults)

Use conservative fluid management in patients with SARI when there is no evidence of shock.

Give empiric antimicrobials to treat all likely pathogens causing SARI. Give antimicrobials within one hour of initial patient assessment for patients with sepsis.

Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials unless they are indicated for another reason.

Closely monitor patients with SARI for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis, and apply supportive care interventions immediately.

Understand the patient's co-morbid condition(s) to tailor the management of critical illness and appreciate the prognosis. Communicate early with patient and family

Table 6. Management for Hypoxemic respiratory failure and Acute respiratory distress syndrome

Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy.

Endotracheal intubation should be performed by a trained and experienced provider using airborne precautions.

Implement mechanical ventilation using lower tidal volumes (4–8 ml/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure <30 cmH2O).

In patients with severe ARDS, prone ventilation for >12 hours per day is recommended.

Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion.

Table 7. Management for septic shock

Recognize septic shock in adults when infection is suspected or confirmed AND vasopressors are needed to maintain mean arterial pressure (MAP) ≥65 mmHg AND lactate is ≥2 mmol/L, in absence of hypovolemia.

give at least 30 ml/kg of isotonic crystalloid in adults in the first 3 hours. In resuscitation from septic shock in children in well-resourced settings, give 20 ml/kg as a rapid bolus and up to 40-60 ml/kg in the first 1 hr.

Do not use hypotonic crystalloids, starches, or gelatins for resuscitation.

Fluid resuscitation may lead to volume overload, including respiratory failure. If there is no response to fluid loading and signs of volume overload appear (for example, jugular venous distension, crackles on lung auscultation, pulmonary edema on imaging, or hepatomegaly in children), then reduce or discontinue fluid administration. This step is particularly important where mechanical ventilation is not available.

Administer vasopressors when shock persists during or after fluid resuscitation. The initial blood pressure target is MAP ≥65 mmHg in adults and age-appropriate targets in children.

If central venous catheters are not available, vasopressors can be given through a peripheral IV, but use a large vein and closely monitor for signs of extravasation and local tissue necrosis. If extravasation occurs, stop infusion. Vasopressors can also be administered through intraosseous needles.

Table 8. Prevention of complications

Reduce days of invasive mechanical ventilation	 Use weaning protocols that include daily assessment for readiness to breathe spontaneously Minimize continuous or intermittent sedation, targeting specific titration endpoints (light sedation unless contraindicated) or with daily interruption of continuous sedative infusions
Reduce incidence of ventilator- associated pneumonia	 Oral intubation is preferable to nasal intubation in adolescents and adults **E** Keep patient in semi-recumbent position (head of bed elevation 30-450)** Use a closed suctioning system; periodically drain and discard condensate in tubing **E** Use a new ventilator circuit for each patient; once patient is ventilated, change circuit if it is soiled or damaged but not routinely*** Change heat moisture exchanger when it malfunctions, when soiled, or every 5–7 days
Reduce incidence of venous thromboembolism	 Use pharmacological prophylaxis (low molecular-weight heparin [preferred if available] or heparin 5000 units subcutaneously twice daily) in adolescents and adults without contraindications. For those with contraindications, use mechanical prophylaxis (intermittent pneumatic compression devices).
Reduce incidence of catheter- related bloodstream	 Use a checklist with completion verified by a real-time observer as reminder of each step needed for sterile insertion and as a daily reminder to remove catheter if no longer needed

infection Reduce incidence of pressure ulcers	Turn patient every two hours
Reduce incidence of stress ulcers and gastrointestinal bleeding	 Give early enteral nutrition (within 24–48 hours of admission) Administer histamine-2 receptor blockers or proton-pump inhibitors in patients with risk factors for GI bleeding. Risk factors for gastrointestinal bleeding include mechanical ventilation for ≥48 hours, coagulopathy, renal replacement therapy, liver disease, multiple comorbidities, and higher organ failure score
Reduce incidence of ICU-related weakness	Actively mobilize the patient early in the course of illness when safe to do so

Table 9. Management of mild COVID19

Patients with mild disease require isolation to contain virus transmission
Provide patients with mild COVID-19 with symptomatic treatment such as antipyretics for fever.

How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

Duration of the entire procedure: 20-30 seconds



Apply a palmful of the product in a cupped hand, covering all surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Once dry, your hands are safe.



A World Alliance for Safer Health Care

SAVE LIVES
Clean Your Hands

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WHO acknowledges the Höofaux Universitates de Genève (HUG), in particular the members of the Infection Control Pogramme, for their active participation in developing this material,

May 2009

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

Ouration of the entire procedure: 40-60 seconds



Wet hands with water;



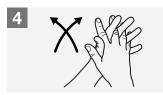
Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.



Patient Safety

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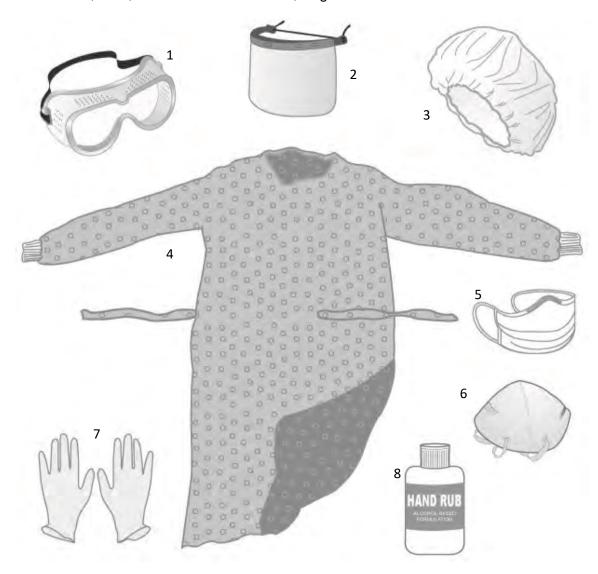
SAVE LIVESClean **Your** Hands

It describes preclautions rake open taken by the Word retain organization to verny the information contained in this occurrent. However, the published material is being distributed without warranty or any wine either expressor of implied. The responsibility for the interpretation and use of the material lies with the reader. In one event shalf bether byte Health Organization be liable for dramages arising from its use.
 WHO acknowledges the Höpitaux Universitaires de Genève (HUG), in particular the members of the Infection Control Programme, for their active participation in developing this material.

May 2009

Annex 3: Personal Protective Equipment (PPE)

Source: WHO, IMAI, District Clinician Manual, Page 263



- 1. Goggles
- 2. Face Shield (use goggles or face shield)
- 3. Head cover
- 4. Gown
- 5. Surgical mask
- 6. N95 mask (use ONLY when airborne precaution is required)
- 7. Gloves
- 8. Handrub

Annex 4: COVID19 reporting form



Interim reporting form for suspected cases of 2019 Novel Coronavirus (2019-nCoV) (based on WHO Minimum Data Set Report Form)

Section 1: Patient information Unique case identifier (used at HF):	Reporting institution:	authority: [_D_](_D_]/(_M_](_M_]/(_Y_](_Y_](_Y_)(_Y_)(_Y_)(_Y_)(_Y_)(_Y_)	
Date of birth: <code>_DD/(_M(_M)/(_Y)(_Y</code>	Section 1: Patient informa	ition	
if < 1 year, [][] in months or if < 1 month, [][] in days Sex at birth:	Unique case identifier (used at HF):		
Admin Level 1 (province): Admin Level 2 (district): Section 2: Clinical information Patient clinical course Date of onset of symptoms:D_D_D_/_M_D_M_/_Y_D_Y_D_Y_D_Y_D_Y_D_Y_D_Y_D_Y_D_Y_D_Y	if < 1 year, [][] in months or if < Sex at birth:	: 1 month, [][] in days Female][] in years
Section 2: Clinical information Patient clinical course Date of onset of symptoms: Description: Description:			trict):
Date of onset of symptoms:		<u> </u>	
	Patient clinical course		
First date of admission to hospital: No	Date of onset of symptoms: Admission to hospital: First date of admission to hospital: Name of hospital: Date of isolation: Is the patient ventilated: Date of death, if applicable: Patient symptoms (check all reported History of fever / chills General weakness Cough Sore throat Runny nose	No Yes [D][D]/[M][M]/[Y][Y][Y][Y] No Yes Unknown [D][D]/[M][M]/[Y][Y][Y][Y] d symptoms): Shortness of breath Diarrhoea Nausea/vomiting Headache Irritability/Confusion	() Muscular () Chest
Patient signs: Temperature: [][][]	Patient signs: Temperature: [][][]	F Coma Dyspnea / tachypnea Abnormal lung auscultation	

Underlying conditions and comorbidity (check all that apply): Pregnancy (trimester:) Cardiovascular disease, including hypertension Diabetes Liver disease Chronic neurological or neuromuscular disease Other, specify	Post-partum (<6 weeks) Immunodeficiency, including HIV Renal disease Chronic lung disease Malignancy
Section 3: Exposure and travel information in the (prior to reporting if asymptomatic)	e 14 days prior to symptom onset
Occupation: (tick any that apply): Student Health care worker Working with animals Health laboratory we have the patient travelled in the 14 days prior to symptom onset? If yes, please specify the places the patient travelled:	_
Country 1 2 3 Has the patient visited any health care facility(ies) in the 14 days Has the patient had close contact¹¹with a person with acute resp If yes, contact setting (check all that apply): Health care setting Family setting Work pl.	
Has the patient had contact with a probable or confirmed case in the No Yes Unknown If yes, please list unique case identifiers of all probable or confirmed case 1 identifier. Case 2 identifier. Lif yes, contact setting (check all that apply): Health care setting Family setting Work place.	nfirmed cases: Case 3 identifier.
If yes, location/city/country for exposure: Have you visited any live animal markets in the 14 days prior to sy If yes, location/city/country for exposure:	rmptom onset?
Case 1 identifier Case 2 identifier If yes, contact setting (check all that apply): Health care setting Family setting Work place If yes, location/city/country for exposure: Have you visited any live animal markets in the 14 days prior to sy	Case 3 identifier e

Interim reporting form for suspected cases of 2019 Novel Coronavirus (2019-nCoV)

¹ Close contact' is defined as: 1. Health care associated exposure, including providing direct care for nCoV patients, working with health care workers infected with novel coronavirus, visiting patients or staying in the same close environment of a nCoV patient. 2. Working together in close proximity or sharing the same classroom environment with a with nCoV patient. 3. Traveling together with nCoV patient in any kind of conveyance. 4. Living in the same household as a nCoV patient

Section 4: Laboratory information

Samples collected		Date of Sample Collection (DD/MM/YYYY)	Date of Sample Sent (DD/MM/YYYY)		
Nasopharyngeal	☐ No ☐ Yes				
Oropharyngeal (Throat)	☐ No ☐ Yes				
Sputum	☐ No ☐ Yes				
Endotracheal Aspirate	☐ No ☐ Yes				
Bronchioalveolar	☐ No ☐ Yes				
Serum	☐ No ☐ Yes				
Others	☐ No ☐ Yes				
f Other samples collected, specify					
Any test conducted at HF / ot	her laboratory for detection o	of pan-CoV			
☐ No ☐ Yes					
If yes, please specify:					
Details of test:					
Name of the laboratory co	nducted:				
Test results:					

Annex 5: Form for specimen transferal to NPHL



Government of Nepal Ministry of Health & Population Department of Health Service

Phone 4252421 Fax: 4252375 E-mail: nphl@nphl.gov.np

National Public Health Laboratory Teku, Kathmandu

Laboratory Sample Collection Form for Suspected COVID-19 Case

Date://					S.	No	
Patient's Name							
Patient's Age	Sex:- □	Male	☐ Female		DOB:		
Patient's Temporary	Province	:	District:				
address	Municipa	ality:	Ward:				
Patient's Permanent	Province		District:				
address	Municipa		Ward:				
Patient's Contact Details	Landline Email:	:	Mobil	e:		_	
Name of hospital where patient is admitted							
Patient's Hospital ID							
Type of Collected Sample	Nasoph	aryngeal	Orophar	ynge	al (Throat)		
	Sputum	L	Endotra	cheal	Aspirate		
	Bronch	ioalveolar	Serum				
	Others		If others	, Ple	ase Specify		
Symptoms:							
ILI		Fever			Cough		
SARI		Duration :-			Duration :-		
Co morbidity		Temp. recorded	(oF)		Dry:- □	Productive:-	
Additional symptoms? If an	y, specify						
Travel History in last 14 day				Cou	ıntry visited (I	f yes) -	
H/O close contact with posi	\Box Y	es	hest X-ray and	CT	Scan finding in	f any:-	
□No	□Y	es					
This form is to be filled mandat	ory by clini	cians to send sample f	for COVID-19				
test. Sample from patient not meeti facility won't be accepted for C Sample should be collected and and cold chain maintenance.	OVID-19 te	esting.			Lab resul Name:- Phone No	t to be commun	nicated:-
For further information please: Contact Person: During Office If Sample Brought After Regul Contact :Mr. Dinesh Thapa Ma (9886128922)Mr. Naresh Thap (9803152149)	Hours- Mr. ar Office Ho gar	Rajesh Kumar Gupta			Attending Signature NMC nur Contact N	mber:	

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