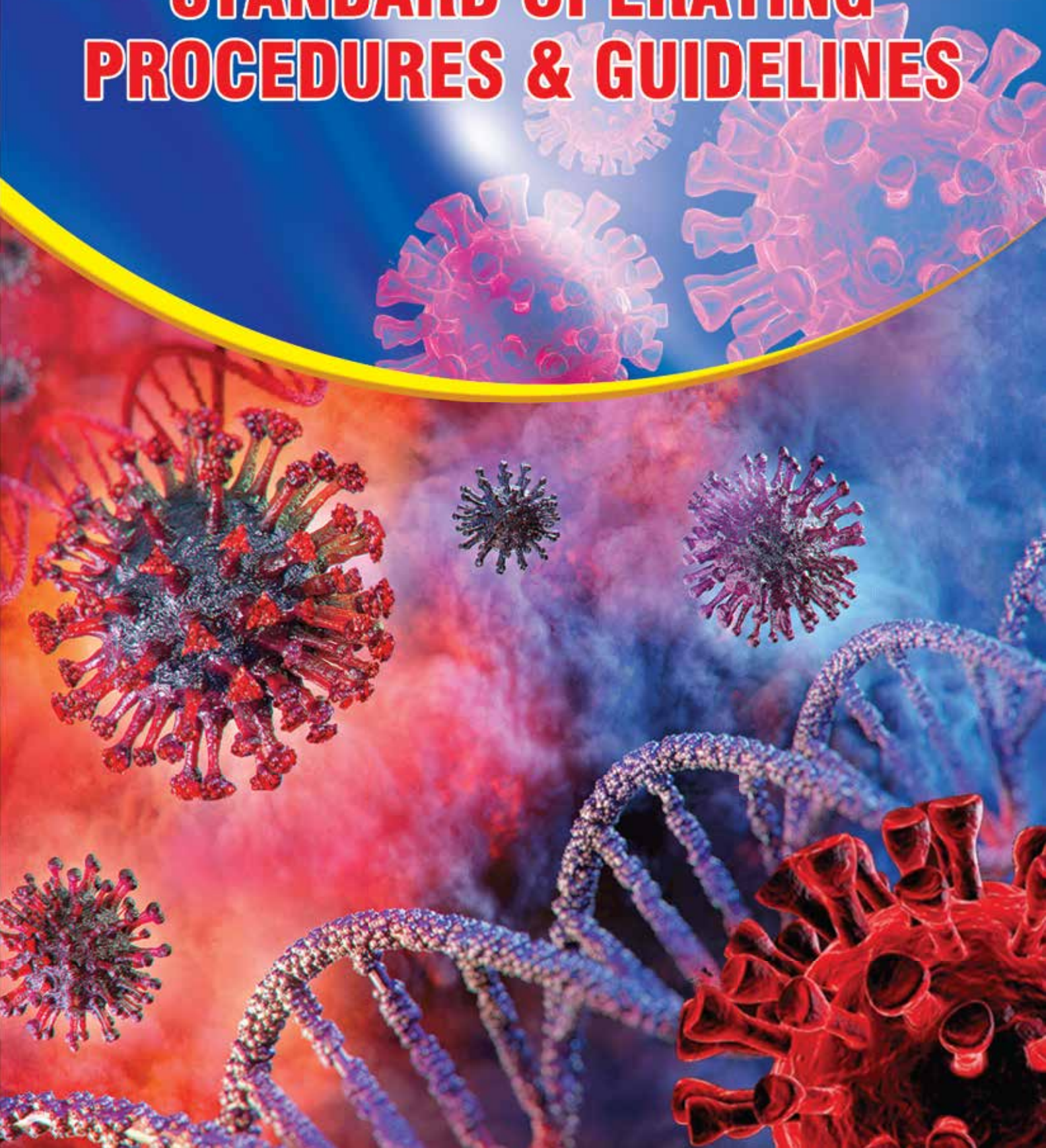




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COVID-19 STANDARD OPERATING PROCEDURES & GUIDELINES



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Message by Sardar Usman Ahmad Khan Buzdar Chief Minister Punjab

Government of the Punjab, in accordance with the vision of Honorable Prime Minister, Islamic Republic of Pakistan, Mr. Imran Ahmed Khan Niazi, is leaving no stone unturned to provide best and quality assured healthcare services at the door step of masses. These endeavors are not merely limited to establishment of new health facilities across the Province and revamping of existing healthcare infrastructure but also strengthening the systems for preparedness by plugging the gaps and lacunas faced in emergencies and epidemics that endanger the health of the people.

The recent outbreak of COVID-19 in China during December 2019, has posed a new challenge for Government of the Punjab for Provincial Health system. This scenario is compounded by the fact that a huge number of people continue to commute between two brotherly countries. There was a great likelihood of transmission of virus to Pakistan. Since Punjab has the largest number of airports and other entry points, so a major responsibility lied on Government to stop the transmission and safeguard the lives of people.

I appreciate the coordinated efforts of all Government Departments especially the Primary & Secondary Healthcare Department and Specialized Healthcare & Medical Education, for taking preemptive measures to take on the challenge including establishment of screening counters at port of entries and dedicated units in specific hospitals, to receive and treat the suspected patients. It is the result of all such measures / steps that were taken so far and by the Grace of Almighty Allah, presently not a single confirmed patient of COVID-19 is reported in the country.

Development of SOPs regarding clinical management, case response, surveillance protocols, sampling guidelines and screening at point of entry for the suspected patients of COVID-19 is another praiseworthy step by the Primary & Secondary Healthcare Department, which would define roles and responsibilities of all stakeholders and facilitate healthcare providers to take informed decisions to reduce the risk of mortalities as well as transmission of virus.

May Allah help and guide us to serve our people with utmost dedication and professional excellence.



Message by Dr Yasmin Raashid Minister PSH and SH&ME Punjab

Newly emerged infection of COVID-19 in China has offered a serious threat to countries across the globe. Pakistan has close brotherhood and business relations with China and there is heavy movement between the two countries. There is need to abide with international health measures to limit the chances of COVID-19 spread in Pakistan. Government of Pakistan has taken marvellous steps to ensure preventive and protective measures at the point of entries and issued advisory for compliance by the provinces. Government of Punjab has responded to the situation promptly and essential measures are ensured to strengthen national level steps as well as enhance health system capacity to cope with any emergency situation which may arise due to very rapid change in the global 2019-n-COVID-19 situation. Proactive arrangements to notify hospitals for receiving any 2019-n-COVID-19 suspected case and treating with human passion and assuring occupational safety are our prime responsibilities. Enforcement of infection prevention and control protocols are highly desired to address safety of health care providers and minimize infection spread. Contextualization of international and national guidelines for case management, surveillance and response to fit in provincial health system were highly desired to minimize the system failure to respond any emergency situation. The set of SOPs are developed through consultative process by leading health professionals and technical experts to make them comprehensive and well responsive. Both the Departments of Primary & Secondary Healthcare, and Specialized Healthcare & Medical Education are fully vigilant and quite receptive to any emergency which may arise due to COVID-19. I pray to almighty Allah to bless our nation with good health and keep us safe from any epidemic.



Message by Barrister Nabeel Ahmed Awan

Secretary Specialized Healthcare and Medical Education

Any medical emergency response requires collective action by various stakeholders, who would have not worked as a team in routine situation. Working together in a well-coordinated manner to minimize the loss is always a challenge. Forecast of any disaster situation and preparedness in terms of identification of stakeholders, notifying their roles, capacitating individuals through trainings, allocation of dedicated logistics, recording reporting and communication among the concerned and many more actions are required for effective response. COVID-19 has created worldwide alarm and concerned functionaries are performing as per their best capacity. Pakistan while facing scarcity of resources may face high damage if COVID-19 response is not implemented in well-coordinated manner. Government of Pakistan responded well in time and issued the national guidelines developed with assistance of world Health Organization and other relevant organization. The National Guidelines require Civil Aviation Authority, Central Health Establishment, National Institutes of Health, Primary & Secondary Healthcare Department, Specialized Healthcare and Medical Education Department and District Health Authorities to perform hand in hand to cope with any medical emergency situation related to COVID-19. The provincial SOPs, developed jointly by the Departments of Primary & Secondary Healthcare and Specialized Healthcare & Medical Education clarify roles and responsibilities of various stakeholders. The SOPs are expected to assure no gap unaddressed in the COVID-19 response and help in dealing with any medical emergency situation in an effective manner. Teaching hospitals are expected to face high pressures to cater case management which may pose risk of rapid infection spread due to overcrowding with routine patient flow. The department assures to establish COVID-19 counters, isolation and high dependency unit facilities in the hospitals in terms of human resource and equipment in conformance with the SOPs. Contact tracing and enforcement of community level infection prevention and control measures are required to be implemented well in time to minimize infection spread. I hope this set of SOPs will enable the stakeholders to perform in well-coordinated manner. May almighty Allah save us from any epidemic and calamity.



Message by Captain (R) Muhammad Usman Younis Secretary Primary and Secondary Healthcare Department

Forecast and preparedness for any epidemic due to surge in endemic, pandemic or newly emerged infection is our primary responsibility. Continued vigilance to case reports for the potential epidemic diseases; review of system strengths; identification of gaps and prompt action to fill in the gaps are key steps to safeguard health of people. The challenge of COVID-19 infection was emerged in Dec 2019 and the Department of Primary and Secondary Healthcare realized the importance of capacity building of healthcare providers for this new infection. Variation in person to person judgments and decision taking practise at individual level while facing any medical emergency situation may lead to higher chances of mismanagement, wastage of public exchequer and loss of precious human lives. Actions comprising of 1) receiving COVID-19 suspected cases at dedicated counters established in the hospitals, 2) sample collection and safe transportation to notified labs 3) treatment of the patients in isolation wards/ high dependency units 4) ensuring the safety of healthcare providers & general public are required to abide with international and national guidelines. Developing SOPs for COVID-19 response and enhancing system strength in conformance with the international guidelines and official protocols issued by Government of Pakistan. were direly needed. The set of SOPs is developed in shorter time duration which would require further updates as COVID-19 situation and recommended response actions are changing very fast. Inter sectoral coordination, safe handling of suspects, sample taking and its transportation for laboratory investigations, treatment facilities as per expert recommendations, contact tracing, risk communication, coping with myths, addressing miss information and community engagement are the major areas requiring clarity. These SOPs elaborates roles and responsibilities of stakeholders and individual members of the health system engaged in dealing with COVID-19 event. The set of SOPs will serve to assure all the desired steps are executed as per desired standards. May almighty Allah bless us to serve our people with full professional honesty and dedication.



Message by Dr Haroon Jehangir Khan Director General Health Services Punjab

History of man and disease goes side by side. Health professionals are looked for to serve the humanity and save precious lives. The epidemic situations for newly emerged infections pose heavy death tolls as formal case management protocols and experience to deal with the such cases is always lacking. COVID-19 has emerged a new challenge and invite rationalized national responses. International Health Regulation and its compliance is a Federal subject and the Government of Pakistan has responded the situation very well. National guidelines have been issued. Hand in hand technical coordination and response action requires enhanced sharing of responsibilities between the Federal Health and Provincial Health System. Punjab is proactive in compliance to the responsibilities and accomplishments. The Provincial Health Leadership and Authorities realized the importance to contextualize the national guidelines and develop SOPs to enhance the international-provincial coordination, elaborate the roles of stakeholders, strengthen the occupational safety assured services at hospitals, improve active surveillance, reinforce active case finding skills, increase contact tracing efficiencies, build trust among masses for community engagement and avoid deviations to the national guidelines. The professional effort for developing this set of ToRs is credited to the able leadership of Dr Yasmin Raashid Minister for PSHC/ SH&ME, Captain (R) Muhammad Usman Younis Secretary PSH Department and Mr Muhammad Nabeel Ahmed Awan Secretary SH&ME Department who assured their wholehearted patronage to the technical working groups deployed to work on these SOPs. The valued time and contribution of the individuals took part in the development of these SOPs is well appreciated. We all pray to almighty Allah to bless us with the enhanced capacity to serve our people.

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SECTION-A

Introduction



Introduction

Background

On 31st December 2019, cases of pneumonia of unknown etiology (unknown cause) were detected in Wuhan City, Hubei province of China. 31st December 2019 through 3rd January 2020, a total of 44 cases of pneumonia of unknown etiology were identified. During this reported period, the causal agent was not identified. Chinese authorities identified a new type of coronavirus on 7th January 2020. On 11th and 12th

On 11th February, 2020, WHO officially named the deadly disease caused by Novel Coronavirus as “COVID-19” The name represent phrase ‘Coronavirus Disease 19’. Experts created the name without referencing any animal, place or person.

January 2020, National Health Commission (NHC) China reported that the outbreak is associated with exposure in one of the seafood and livestock markets in Wuhan City. The On 12th January 2020, China shared the genetic sequence of the novel coronavirus for countries to use in developing specific diagnostic kits. Subsequently, laboratory confirmed cases of 2019-nCoV reported by Thailand, Japan and Korea. On 30th January 2020, 2019-nCoV was declared a global health emergency by the World Health Organization (WHO) and declared that the outbreak constitutes a Public Health Emergency of International Concern (PHEIC).

At this point in time i.e. **25th March 2020, 194 countries have been affected with 425,493 confirmed cases, 8,963 deaths. In Pakistan 1000 cases and in Punjab 296 cases have been reported so far.**

This SOPs booklet is a comprehensive document which can be used by healthcare providers and other staff at each level of treatment and care. This document is developed to enable the field formations to implement for their own safety and also to protect the common man. The Quarantine, both home & facility based, home isolation, burial guidelines, risk mitigation and awareness messages are also annexed for ready reference.

Objectives of This Document

Coronavirus disease (COVID-19) is new infectious disease caused by a newly discovered coronavirus with limited available knowledge. The Ministry of Health Services, Regulations and Coordination (MHSR&C) has developed guidelines based upon WHO documents however these documents are mainly focusing upon coordination and response at point of entries (POEs). There is a need to prepare a comprehensive guiding document covering all aspects including technical guidance and standard operating procedures and protocols aligned with provincial health system. It demands a set of SOPs and guidelines for all the levels of care, which are well aligned with global, national and local context to establish and implement prevention and control measures. This document will agreeably address the need and will also help stakeholders to get all the required information (available so far) about the COVID-19, existing surveillance mechanism and their respective role and responsibilities; **AND** facilitate clinicians and care providers on standard case management

The document has **FIVE** main sections:

1. **Section- B: Surveillance and Response (S&R)**
2. **Section- C: Clinical Management Guidelines**
3. **Section- D: Laboratory Samples Collection and Transportation**
4. **Section- E: Infection Prevention and Control (IPC)**
5. **Section- F: Risk Communication and Psychosocial Support**

All important areas related to COVID-19 are covered under these main sections.

SECTION - B

Surveillance and Response



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Scope of This Section

This document is intended to provide guidance to provincial and district teams involved in COVID-19 surveillance and response actions on implementation recommended surveillance standards and response protocol.

What is Public Health Surveillance?

Public health surveillance is “the continuous, systematic collection, analysis and interpretation of health related data needed for the planning, implementation, and evaluation of public health practice”. Surveillance can:

- ☒ monitor and clarify the epidemiology of health problems
- ☒ serve as an early warning system for impending public health emergencies;
- ☒ document the impact of an intervention, or track progress towards specified goals; and
- ☒ allow decision makers to develop public health policy and strategies.

Objectives of COVID-19 Surveillance

- ☒ To monitor trends in COVID-19 disease at provincial, national and global levels.
- ☒ To rapidly detect new cases in the province and in the areas where the virus circulation is not known, and monitor trends in districts where the COVID-19 cases are reported.
- ☒ To provide epidemiological information to conduct risk assessments at the district, provincial and national levels.
- ☒ To provide epidemiological information to guide preparedness and response measures.

Case Definitions

Suspected Case: (Revised by the WHO on 20th March, 2020)

- A)** A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), **AND** a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 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 symptom onset;
- OR**
- C)** A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath; **AND** requiring hospitalization) **AND** in the absence of an alternative diagnosis that fully explains the clinical presentation.

Probable Case

- A)** A suspect case for whom testing for COVID-19 is inconclusive.
- B)** A suspect case for whom testing could not be performed for any reason.

Confirmed Case

A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

Contacts

A contact is a person who experienced any one of the following exposures during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case:

1. Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes;
2. Direct physical contact with a probable or confirmed case;
3. Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment;
4. Other situations as indicated by local risk assessments.

Note: for confirmed asymptomatic cases, the period of contact is measured as the 2 days before through the 14 days after the date on which the sample was taken which led to confirmation.

Epidemiology

Infectious Agent

1. A new strain of Coronavirus is recognized for the spread of "Coronavirus Disease 2019 (COVID 19)" which is named as SARS -COV 2 (Severe Acute Respiratory Syndrome Coronavirus 2).
2. Coronaviruses are a large family of viruses, some can cause illness in human and others that circulate among animals, including camels, cats and fruit bats.
3. Sometimes, zoonotic coronaviruses mutate and infect human and then spread between people such has been seen with Severe Acute Respiratory Syndrome SARS-COV (2002) and Middle East Respiratory Syndrome (MERS-COV) in 2012 epidemics.
4. This new virus strain SARS-COV 2 is also believed to be of zoonotic origin

Mode of Transmission

Current information suggests that the route of human-to-human transmission of COVID-19 is either via respiratory droplets or contact. Any person who is within **1 meter** (in close contact) of someone who has respiratory symptoms (e.g. sneezing, coughing, etc.) is at risk of being exposed to potentially infective respiratory droplets.

Some researchers reported that there could be a possibility of aerosol transmission in a relatively closed environment with prolonged exposure to high concentrations of aerosols, like in ICU and CCUs in hospitals, but more investigations and analysis of epidemiological data is needed to further understand this mode of transmission of the virus.

Incubation Period

The "incubation period" means the time between catching the virus and beginning to have symptoms of the disease. Most estimates of the incubation period for COVID-19 range from 1-14 days, most commonly around five days. These estimates will be updated as more data become available.

Population at Risk

People of any age and sex may got infected with COVID -19 however reportedly disease course is more severe for elder patients and patients with any pre-existing chronic disease or co-morbidity.

Clinical Presentation

The spectrum of clinical illness associated with COVID-19 is very wide. The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. These symptoms are usually mild and begin gradually.

- ☒ Some people become infected but don't develop any symptoms and don't feel unwell.
- ☒ Most people (about 80%) recover from the disease without needing special treatment.
- ☒ Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and develops difficulty breathing.
- ☒ Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness.
- ☒ People with fever, cough and difficulty breathing should seek medical attention.

Alert/Outbreak Thresholds

The COVID-19 Epidemic has been declared as 'Pandemic' by the WHO on March 11, 2020. Thus necessitating each positive case and contact MUST be detected, isolated and managed to curtail the transmission.

Alert Criteria One suspected case (meeting case definitions of COVID-19) is an alert and to be reported and investigated immediately.

Outbreak Criteria One confirmed case of COVID-19 is an outbreak and will trigger epidemic response protocols.

Classification of Transmission Scenarios

WHO recommends using the following categories to describe transmission patterns at national and sub-national levels (wherever possible), to guide decisions for preparedness, readiness and response activities.

Category Number	Category Name	Definition
1	No Case	Regions/areas/districts with no case
2	Sporadic Cases	Regions/areas/districts with one or more cases, imported or locally detected
3	Clusters of Cases	Regions/areas/districts experiencing cases, clustered in time, geographic location and/or by common exposures
4	Community Transmission	Regions/areas/districts experiencing larger outbreaks of local transmission defined through an assessment of factors including, but not limited to: <ul style="list-style-type: none">- Large numbers of cases not linkable to transmission chains- Large numbers of cases from sentinel lab surveillance- Multiple unrelated clusters in several areas of regions/areas/districts

Note: Provincial authorities will guide districts on preparedness and response activities according to contingency plan for specific scenario based upon the assessments and the epidemiological data.

Surveillance Protocols

Strengths of an efficient and effective surveillance system include:

- ☒ Capacity of regular data collection and timely sharing of information across different administrative levels for appropriate actions
- ☒ Use of 'standard case definitions' and case investigation protocols
- ☒ Case reporting mechanism, active surveillance & follow up system, contact tracing, monitoring and follow up mechanism
- ☒ Surveillance system that covers all important avenues including hospitals, sentinel sites, labs, private sectors healthcare facilities, quarantine sites, Point of Entries (POE) and from informal sources including print & electronic media, social media and community (event based surveillance)
- ☒ Have mechanism for timely reporting using WHO standard case reporting form
- ☒ Established communication channel with all stakeholders and national International Health Regulation (IHR) focal point.

Case Reporting

Responsibility of case reporting is on:

- ☒ Focal persons at designated health facility
- ☒ Medical Superintendents/ In-charges of health facilities
- ☒ Laboratory focal person (In-Charge)
- ☒ Chief Executive Officer (CEO) of District Health Authority (DHA)
- ☒ Quarantine facility In-charge through CEO Health of respective district
- ☒ Administrators of private sector healthcare facilities, parastatal hospitals through respective DHA
- ☒ Health Authorities operating at POE
- ☒ Telemedicine facilities
- ☒ Helpline through MO/WMO

Command and Control Center

Department of Primary and Secondary Healthcare (PSHC) has established a purpose built Command and Control Center (CCC) to meet the requirements of a good surveillance & response system.

The Command and Control System is operational 24/7 under direct supervision of Senior Officers and Technical staff.

- ☒ The Command and Control Center has working linkages with all provincial departments, district administrations in all 36 districts, Rapid Response Teams (RRT) in the districts, National and Provincial Lab networks, POE, National IHR Focal Points and other important stakeholders including Law Enforcing Agencies.
- ☒ The case information from hospitals, labs, sentinel sites, active quarantine sites and private facilities are required to be immediately notified using COVID-19 surveillance and reporting application developed and notified by the Primary & Secondary Healthcare Department Punjab.
- ☒ The DSS dashboard may also be used for case reporting.
- ☒ In the absence of any access to reporting dashboards, other means of reporting like (SMS, Phone Call, and Email etc.) can also be used.
- ☒ The information is immediately reflected on the COVID-19 dashboard where CCC analyses and notifies the case information to respective Rapid Response Team of that district.

- ☒ District Rapid Response Team will be immediately mobilized to verify information, investigate and generate case response as per protocols.

Case Response for any COVID-19 alert will follow standard steps of case investigation however additional actions are required to be undertaken in special settings. Case reporting can be from:

- ☒ Case reporting from POE
- ☒ Case reporting from the Health Facility
- ☒ Case reporting from the Laboratory
- ☒ Case reporting from the Quarantine Site
- ☒ Case reporting from the Community
- ☒ Case reporting from the jail settings.
- ☒ Cross notified Cases

Case Response

Objectives of case response are:

- ☒ Rapidly detect COVID-19 and any evidence of transmission among contacts
- ☒ Contain human-to-human transmission, prevent outbreaks and spread of disease

The case response protocols include:

- ☒ **Mobilization of Rapid Response Rate (RRT):**
 - o Mobilize team notified for rapid response to any COVID-19 alert. The team composed and notified must have required knowledge, capacity, resources and authority to undertake required measures.
 - o The team must have logistics/supplies including specimen collection material, transport containers, VTM, labels, cold packs, sanitizers and personal protective equipment to minimize risk of infection to investigation team.
 - o RRT must have required tools in enough numbers which include copies of case investigation protocols, CIF, lab request form, contact tracing and listing tools, standard case definitions and material for risk communication.
- ☒ **Isolate:** Immediate isolation of suspected case from general public, preferably in Isolation Unit.
- ☒ **Assess:** The physician in RRT will conduct assessment of the patient and his/her medical condition.
- ☒ **Evaluate:** Evaluate the reporting patient against case definition. To evaluate, RRT must collect information about onset of symptoms, possible epidemiological linkages with any COVID-19 case (suspected or confirmed) or h/o living in or traveling from any affected area and occupation (Healthcare workers are at most risk).
- ☒ **Case Management:** If the suspected person matches the case definition, clinical management should be started in isolation unit/hospital. If otherwise, the patient will be managed for other conditions as assessed by treating doctors.
- ☒ **Test:** The lab samples for suspected case will be collected for confirmation of COVID-19. The recommended test for COVID-19 is RT-PCR and nasopharyngeal and throat swabs should be collected from the patient by trained staff and should be sent to designated lab/provincial lab in triple packing along with duly filled Lab Request Form and Case Investigation Form.
- ☒ **Contact Tracing:** Contact tracing is most important measure in containment of outbreak by breaking chain of transmission. The RRT shall ensure listing of all close contacts of the COVID-19 patient (suspect/confirmed). The definition of "Contacts" shall be used for identification and listing of contacts.

- ☒ **Contacts Monitoring and Follow Up:** The identified contacts shall be followed up and monitored for fever and symptoms for a period of 14 days from last unprotected exposure with the COVID-19 patient. Detailed steps on Contact Tracing and follow up are given in the section below.
- o **Risk Communication:** Encourage people to adopt protective behaviors (frequent hand washing, good respiratory etiquettes, and avoiding people with respiratory symptoms).
- o RRT should also assess the perception of risk among affected and at-risk population, manage expectations and address uncertainties.
- o **Infection Prevention and Control:** Adherence to IP & C measures is pivotal in preventing the spread. The infection prevention and control measures include appropriate use of PPE, containment of patients & contacts, disinfection & decontamination of environment AND appropriate collection and disposal of waste. All these measures are required to be ensured at each level including Health Facility, Quarantine Sites and Patient home (Detailed SOPs on Infection Prevention and Control is given in respective sections).
- o **Data Management and Reporting:** Each case response must be recorded in standard Case Investigation Form by respective district RRT and reported to all concerned. The data related to that specific case must be updated in the dashboard including lab results, patient outcome, listing and status of contacts etc.
- o Adopt and implement further investigation protocols according to WHO guidelines as and when required by the local authorities e.g., Surface sampling of COVID-19 virus etc.

Rapid Response Teams: Notification and Terms of Reference

The team is comprised of following members: -

- | | |
|--|-----------|
| 1) Disease Surveillance Coordinator | Team Lead |
| 2) District Entomologist | Member |
| 3) District CDC Officer | Member |
| 4) District Sanitary Inspector | Member |
| 5) District Superintendent Vaccination | Member |

ToRs

- I. They will maintain the line list of all communicable diseases of Public Health importance.
- II. They will follow up the cases on regular basis till the completion of the incubation period of each disease
- III. They will coordinate in referring the cases to the clinical specialist of their district
- IV. They will ensure active case finding and their contract tracing
- V. They will provide feedback to provincial focal person and other line departments (Livestock, Police, District Administration)
- VI. Coordinate with all formations of Health Department, Line Departments and International Partners
- VII. Personal Protective Equipment (PPE) and other necessary logistics will be available with the team and will be replenished on need basis, where necessary.

Laboratory Diagnosis

Respiratory virus diagnosis depends on the collection of high-quality specimens, their rapid transport to the laboratory and appropriate storage before laboratory testing. The health facilities and teams managing a suspected COVID-19 case must ensure that the specimen is collected according to SOPs by appropriately trained staff member. The staff must be trained on PPE donning and doffing, proper disposal, appropriate collection, specimen storage, packaging and transport under cold chain conditions.

- ☒ RT-PCR is the confirmatory test
- ☒ Collect specimen both from nasopharynx and oropharynx from ambulant patients and transport in one tube for better virus yield.
- ☒ Collect specimen from lower respiratory tract (expectorated sputum, endotracheal aspirate, broncho-alveolar lavage) from patients with more severe disease.
- ☒ Collect blood sample for cultures for bacteria that cause pneumonia and sepsis, ideally before antimicrobial therapy.
- ☒ Serology for diagnostic purposes is not yet recommended.

Contact Tracing and Management

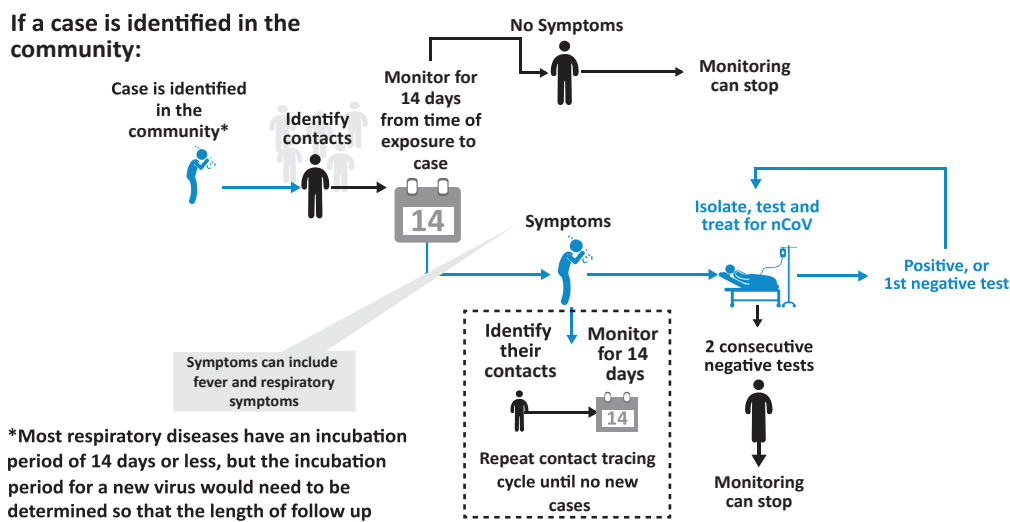
- ☒ Contact Tracing is finding everyone who comes in direct contact with a COVID-19 patient.
- ☒ Contact tracing is defined as the identification and follow-up of persons who may have come into contact with an infected person.
- ☒ Contact tracing is an integral component of the overall strategy for controlling an outbreak of Corona Virus Disease (COVID-19).
- ☒ Contacts are watched for signs of illness for 14 days from the last day they came in contact with a COVID-19 patient
- ☒ If the contact develops a fever or other COVID-19 symptoms, will be immediately isolated, tested and provided care **AND** cycle starts again.
- ☒ All of new patient's contacts are found and watched for 14 days.
- ☒ Even a missed contact can keep the outbreak GOING
- ☒ Contact tracing is therefore one of the most effective outbreak containment measures and must be implemented prudently.
- ☒ Contact identification is an essential part of epidemiologic investigation for all cases meeting the standard/surveillance case definitions of COVID-19.
- ☒ These cases are classified as suspected, probable or confirmed.
- ☒ Epidemiologic investigation is also conducted for all cases and deaths, either in the community or in a health facility, that are attributable to COVID-19.
- ☒ The tool for conducting an epidemiologic investigation is the case investigation form.
- ☒ The use of a comprehensive and standardized case investigation form is recommended.
- ☒ After completing the case investigation form, the epidemiologist/surveillance officer should systematically identify potential contacts.
- ☒ Contact identification therefore begins from a case.
- ☒ Identification of contacts is done by asking about the activities of the case (whether alive or dead)

AND

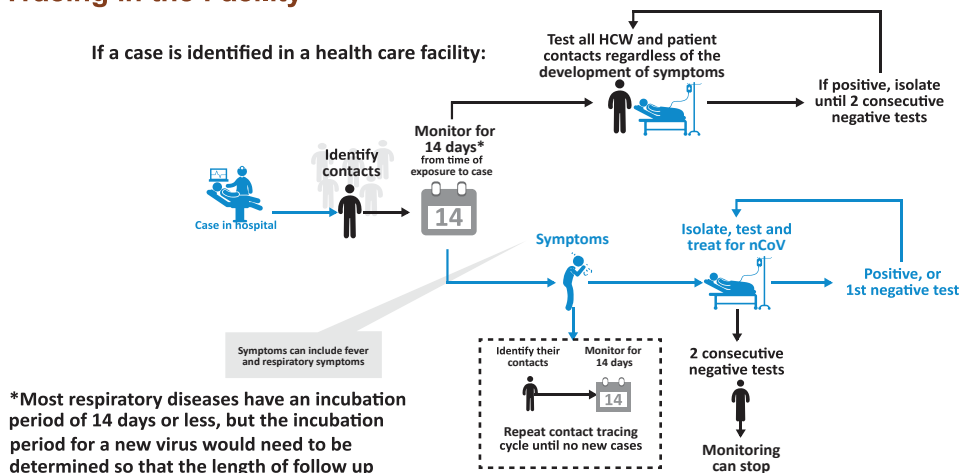
- ☒ The activities and roles of the people around the case (alive/dead) since onset of illness.
- ☒ Although some information can be obtained from the patient, much of the information will come from the people around the patient.
- ☒ It is mandatory for the surveillance officer to visit the home & workplace of the patient.
- ☒ The following information should be obtained:
 - All persons who lived with the case (alive/dead) in the same households during the 2 days before and the 14 days after the onset of symptoms.
 - All persons who visited the patient (alive/dead) either at home or in the health facility during the 2 days before and the 14 days after the onset of symptoms.
 - All places and persons visited by the patient during the 2 days before and the 14 days after the onset of symptoms e.g. healthcare providers, workplace, relatives, etc. All these places and persons should be visited and contacts should be identified.
 - All health facilities visited by the patient since onset of illness and all health workers who attended to the patient (alive/dead) without appropriate infection prevention and control procedures.
 - All persons who had contact with the dead body from the time of death, through the preparation of the body and the burial ceremonies.

Contact Tracing Infographic

A) Contact Tracing in the Community



B) Contact Tracing in the Facility



SECTION - C

Clinical Management Guidelines



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Clinical Management Guidelines

Scope of this Section

This document is intended for clinicians taking care of hospitalized adult and pediatric patients with suspected or confirmed COVID-19.

It is not meant to replace clinical judgment but intended to assist clinical management of these patients and provide up-to-date guidance.

Clinical Case Definition

Suspected Case:

A patient with acute illness (<14 days) with **ANY** one of the following symptoms

- Fever
- Cough (new onset or worsening of existing)
- Shortness of breath (new onset or worsening of existing)
- Flu like illness
- Tiredness, body aches, fatigue

AND

History of travel or residence in a country/area reporting local or community transmission during the 14 days prior to symptom onset

OR

Close contact with a confirmed or probable case of COVID-19

Probable Case:

A suspected case for which testing for COVID-19 is inconclusive or could not be performed for any reason

Confirmed Case:

A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

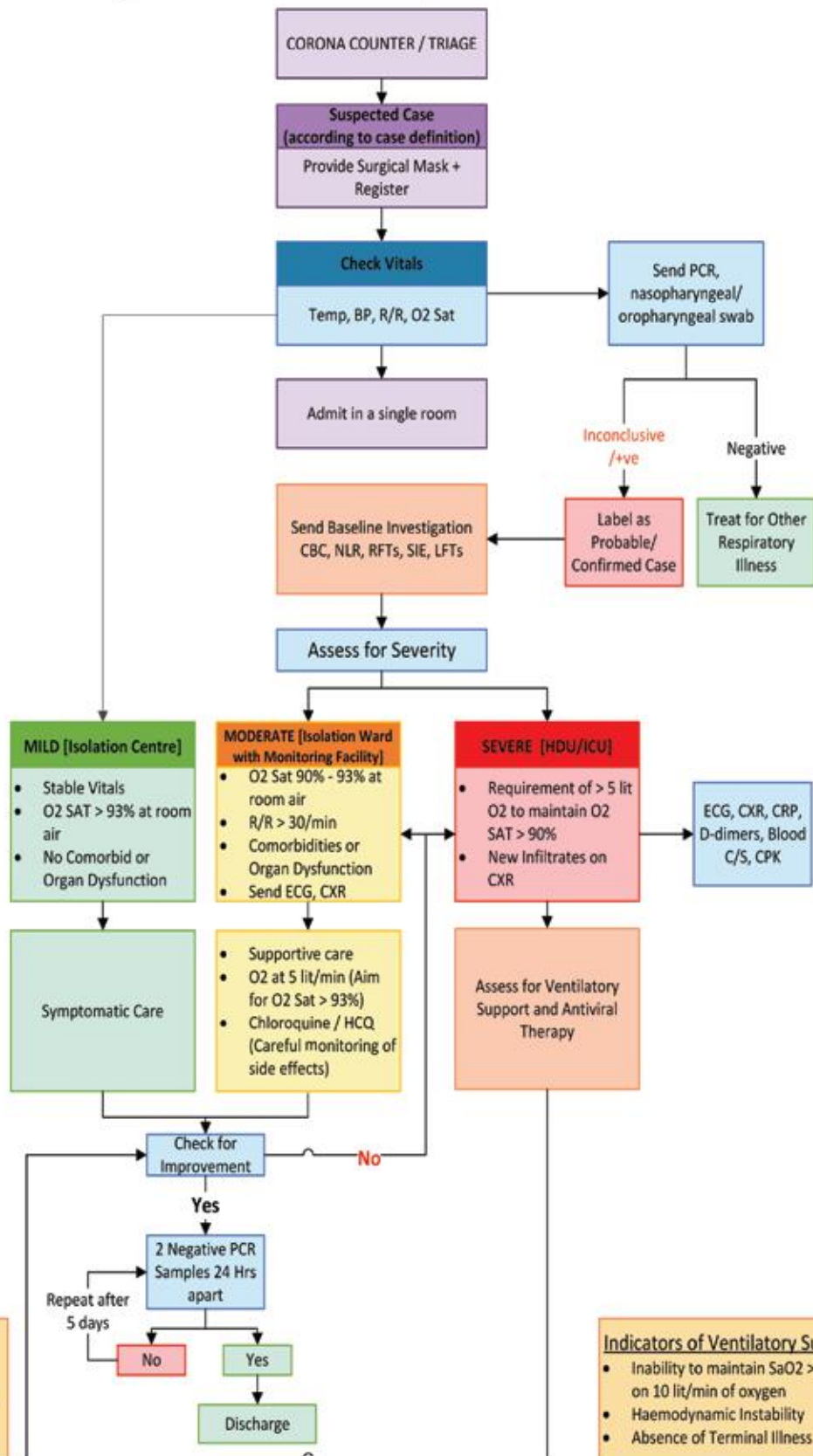
Case Identification:

- Recognize patients with symptoms as defined in case definition at any point of contact with health care system and consider COVID-19 as a possible cause of acute respiratory illness.
- Implement Infection Prevention and Control (IPC) measures and start management based on disease severity.

Keeping in view the ever evolving knowledge of the COVID-19 infection and its transmission patterns, it is strongly advised that all suspected cases should be isolated in hospital setting.

Patients **NOT** meeting the case definition of suspected COVID-19 should be assessed and managed according to treatment protocols of other respiratory illnesses as diagnosed by the clinician.

Algorithm for Clinical Management of COVID-19



Investigations

Baseline

- ☒ Complete Blood count with NLR
- ☒ Urea & Creatinine
- ☒ Serum Electrolytes
- ☒ Liver Function Tests
- ☒ D-dimers
- ☒ CRP
- ☒ Blood Cultures
- ☒ Other tests as indicated

Radiology

- ☒ Chest X-ray
- ☒ Chest Ultrasound
- ☒ CT Chest (when indicated)

Management of Confirmed COVID-19 Cases

- ☒ Apply standard droplets, contact & airborne precautions when managing such patients.
- ☒ If the patient has mild disease, Isolate & Provide symptomatic care only(Refer to Isolation Guidelines in the Annexures).
- ☒ If the patient has moderate to severe disease, manage in isolation room/HDU/ ICU with monitoring facility(Refer to Isolation Guidelines in the Annexures).

Management of Clinical Syndromes Associated with COVID-19 Infection

- ☒ Spectrum of COVID-19 ranges from asymptomatic infection to pneumonia, ARDS, sepsis and septic shock.
- ☒ General supportive measures remain the mainstay of treatment
- ☒ Chloroquin, Hydroxychloroquin and some antivirals have been tested in clinical trials with promising results in some cases and may be used for treating severe COVID-19.

Clinical Classification

A) Mild Cases or Uncomplicated Illness

- ☒ Patients with mild or uncomplicated upper respiratory tract infection may have non-specific symptoms.
- ☒ The signs and symptoms of uncomplicated illness include fever, cough, sore throat, nasal congestion, malaise, headache and myalgia.
- ☒ Chest X-ray is usually normal

The elderly and immunocompromised may present with atypical symptoms

Management of Mild or Uncomplicated Illness

Supportive care

- ☒ Acetoaminophen
- ☒ Antihistamines

B) Moderate Cases

- ☒ In addition to symptoms of uncomplicated illness, patient may have chest pain, fatigue and tiredness.
- ☒ Chest X-ray may show infiltrate

Management of Moderate Cases /Mild Pneumonia

- ☒ Such patients require dedicated inpatient management by trained clinicians who can assess the patient's condition and able to pick any signs of deterioration as early as possible
- ☒ Management protocols are on same lines i.e. symptomatic management
 - Antipyretics
 - Antihistamines
 - Oxygen may be required in selected cases
 - Nebulization should be avoided as it is aerosol generating.
 - Dry powder inhalers (DPI) may be used when required.
 - Chloroquin or Hydroxychloroquin has been tried in moderate disease in some clinical studies with good results.

C) Severe Cases /Severe Pneumonia

- ☒ All patients with severe pneumonia should be managed in HDU with regular monitoring under strict IPC protocols.

Adults who meet any of the following criteria are labeled as severe cases

- ☒ Respiratory rate > 30 breaths/min;
- ☒ SpO₂ < 90 % on room air.
- ☒ Systolic Blood Pressure <90mm Hg.
- ☒ New infiltrates on CXR

Management of Severe Pneumonia

- ☒ In patients with respiratory distress, hypoxemia, or shock, immediately initiate supplemental Oxygen therapy at 5-10 liter/min
- ☒ Titrate flow rates to reach the targets as below:
 - Target**
 - SpO₂ ≥ 90% in non-pregnant adults
 - SpO₂ ≥ 92 to 95% in pregnant patients
- ☒ Use conservative fluid management when there is no evidence of shock.
(Aggressive fluid management may worsen oxygen saturation especially in settings where ventilator support is not available).
- ☒ Give empiric antimicrobials to treat likely pathogens. Give antimicrobials within one hour of initial patient assessment for patients with sepsis.
- ☒ Empirical antibiotic therapy will be based on clinical diagnosis of community-acquired pneumonia, or hospital acquired pneumonia.
- ☒ Do not give systemic corticosteroids routinely for treatment of viral pneumonia or ARDS outside of clinical trials, unless they are indicated for another reason.
- ☒ Closely monitor patients for signs of clinical deterioration, such as rapidly progressive respiratory failure and sepsis
- ☒ 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 the patient and the family

D) Critical Cases

(Needing Ventilatory Support)

1. Inability to maintain SpO₂ >90 % on 10 lit/min oxygen
2. Haemodynamic instability
3. Absence of terminal illness

Acute Respiratory Distress Syndrome

ARDS is one of the severe form of diseases and requires HDU management with frequent monitoring and strict IPC measures

- ☒ New or worsening respiratory symptoms within one week of clinical presentation.
- ☒ The diagnosis of ARDS is mainly through chest imaging using either:
 - Chest X-ray
 - CT chest or
 - Lung ultrasound
- ☒ Findings include bilateral opacities, not fully explained by effusions; lobar or lung collapse, or nodules
 - Echocardiography can be done to exclude hydrostatic cause of edema.
 - Signs and symptoms of severe pneumonia include:

In adults and adolescents:

- Non cardiogenic pulmonary edema
- Labored or rapid breathing
- Fever
- Muscle fatigue
- Discolored skin and nails
- Rapid pulse rate
- Hacking cough
- Classification according to severity:
 - Mild ARDS $200 \text{ mm Hg} < \text{PaO}_2 / \text{FiO}_2 \leq 300 \text{ mm Hg}$
 - Moderate ARDS $100 \text{ mmHg} < \text{PaO}_2 / \text{FiO}_2 \leq 200 \text{ mmHg}$
 - Sever ARDS $\text{PaO}_2 / \text{FiO}_2 \leq 100 \text{ mm Hg}$

In children:

- Abdominal pain
- Cough

- o Fatigue
- o Shortness of breath
- o Classification according to severity:
 - ☒ Mild ARDS $4 \leq OI < 8$ or $5 \leq OSI < 7.5$
 - ☒ Moderate ARDS $8 \leq OI < 16$ or $7.5 \leq OSI < 12.3$
 - ☒ Severe ARDS $OI \geq 16$ or $OSI \geq 12.3$

(OI= Oxygenation Index; OSI= Oxygenation Index Using SpO₂).

Management

- ☒ Recognize severe hypoxemic respiratory failure when a patient with respiratory distress is failing standard oxygen therapy of 10-15 liter/min
 - o High-flow Nasal Oxygen (HFNO) or Non-Invasive Ventilation (NIV) should only be used in selected patients with hypoxemic respiratory failure.
 - o The risk of treatment failure is high, and patients treated with either HFNO or NIV should be closely monitored for clinical deterioration.
- ☒ 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
- ☒ In patients with moderate or severe ARDS, higher PEEP instead of lower PEEP is suggested
- ☒ In patients with moderate-severe ARDS (PaO₂/FiO₂ <150), neuromuscular blockade by continuous infusion should not be routinely used.

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), o Heart Rate (HR) > 90/min
- ☒ Respiratory Rate (RR) > 20/min o PaCO₂ < 32 mm Hg
- ☒ White blood cells > 12 000 or < 4000/mm³ or > 10% immature (band) forms

Signs and Symptoms

Sepsis leads to life threatening organ dysfunction manifested as:

- ☒ Altered mental status
- ☒ Difficult or fast breathing

- ☒ Low oxygen saturation
- ☒ Reduced urine output
- ☒ Fast heart rate
- ☒ Weak pulse
- ☒ Cold extremities
- ☒ Low blood pressure
- ☒ Skin mottling

In children, suspected or proven infection and ≥ 2 SIRS criteria, of which **ONE** must be abnormal temperature or white blood cell count

Septic Shock

Sepsis-induced hypotension (SBP < 90 mm Hg) despite adequate fluid resuscitation and signs of hypo perfusion.

- ☒ **In adults** suspected or confirmed for COVID-19 infection, septic shock is labelled when:
 - Vasopressors are needed to maintain mean arterial pressure ≥ 65 mmHg
 - Absence of hypovolemia
 - Lactate is ≥ 2 mmol/L
- ☒ **In children**
 - Hypotension is essential criteria and any TWO of the following
 - Altered mental state
 - Tachycardia (>150 beats/min in children >160 beats/min in infants)
 - Bradycardia <70 beats /min in children and <90 beats/min in infants)
 - Prolonged capillary refill time (>2 sec)
 - OR**
 - Warm vasodilation with bounding pulse, tachypnea, mottled skin, petechial or purpuric rash, increased lactate, oliguria, hyper or hypothermia

Management of Sepsis and Septic Shock

- ☒ Empirical broad-spectrum antibiotics are the hallmark of management of sepsis and septic shock Adjust according to culture and sensitivity results when available.
- ☒ Fluid resuscitation
 - **Adults:** 30 ml/kg of isotonic crystalloid in the first 3 hours.
 - **Children:** 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.
- ☒ Vasopressors when shock persists during or after fluid resuscitation.
- ☒ The initial blood pressure target is Mean Arterial Pressure (MAP) ≥ 65 mmHg in adults' 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.
- ☒ If signs of poor perfusion and cardiac dysfunction persist despite achieving MAP target with fluids and vasopressors, consider an inotrope such as dobutamine.

Anti-Viral Therapy

- ☒ No anti-viral therapy has been approved by WHO to treat COVID-19 in humans.
- ☒ Multiple RCTs are ongoing at present.

Whenever possible, patients should be enrolled in RCTs.

Information is provided below about some of the agents which are currently being used by in management of COVID-19.

- ☒ Inclusion in this chapter is not a recommendation to use one or more of these medications.
- ☒ A focus is placed on lopinavir/ritonavir and chloroquine since these agents are currently available.
- ☒ Practitioners are encouraged to review available evidence and reach their own conclusions regarding whether to use these medications.

Lopinavir/Ritonavir

- ☒ 200/50 mg 2 tablets twice daily
- ☒ Available drug
- ☒ In vitro reduces replication by 50% in MERS corona virus
- ☒ Definite efficacy not proven
- ☒ WHO has mentioned as an agent that can be tried
- ☒ May also be tried in combination with Interferon alpha or Ribavirin

Ribavirin

- ☒ Inhibitor of RNA polymerization
- ☒ Studies done in MERS-CoV
- ☒ Concentration required to inhibit MERS-CoV in vitro exceeds peak levels in the blood after therapeutic doses in humans.
- ☒ High risk of toxicity
- ☒ No study results yet in SARS-CoV2

Interferons

- ☒ IFN- α 2a, IFN- α 2b or IFN- β 1a
- ☒ SARS CoV2 attenuates the interferon (IFN) response of the innate immune system
- ☒ **Impair the antiviral adaptive type 1 T-helper cell**
- ☒ But in vitro effects hasn't been fully shown to be working

Chloroquine/ Hydroxychloroquine

- ☒ Proposed mechanism- Hampers the low pH dependent steps of viral replication
- ☒ Proposed treatment dose
- ☒ Chloroquine phosphate 500 mg bd on day 1 and 250 mg bd for 4 days
- ☒ HCQ 400 mg bd on day 1 and 200 mg bd for 4 days
- ☒ Has been even suggested for prophylaxis- however lacks sufficient evidence to be recommended at this stage

Corticosteroids

- ☒ Not indicated in treating SARS CoV2 as per available evidence
- ☒ Might prolong viral shedding
- ☒ Use as per indicated in septic shock/if patient has other indications for steroid use

Anti-Bacterial Therapy

Initial empirical antibiotics

- ☒ COVID-19 itself is not an indication to start antibiotics.
- ☒ However, antibiotics can be initiated to treat secondary bacterial pneumonia.
- ☒ Broad spectrum antibiotics to be initiated according to the institution based guidelines

Discharge Criteria

Patient asymptomatic or in Recovery Phase with Stable Vitals

- ☒ The RT-PCR tested negative twice consecutively (sampling interval more than 24 hours)
- ☒ There are no comorbidities or complications which requires hospitalization
- ☒ Oxygen Saturation is $> 93\%$ on room air.

Special Considerations for Pregnant Patients

- ☒ Pregnant women with suspected or confirmed COVID-19 infection should be treated with supportive therapies as described above, taking into account the physiologic adaptations of pregnancy.
- ☒ Emergency delivery and pregnancy termination decisions are challenging and based on many factors: gestational age, maternal condition, and fetal stability.
- ☒ Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are essential.
- ☒ Unlike coronavirus infections of pregnant women caused by SARS and MERS, COVID-19 did not lead to maternal deaths

- ☒ There is no evidence that SARS-CoV-2 undergoes intrauterine or trans-placental transmission from infected pregnant women to their fetuses

Breast Feeding

- ☒ In suspected or confirmed COVID-19 mother or child breast feeding is not a contraindication.
- ☒ During breast feeding infant and mother should remain together with contact precautions.
- ☒ If there are respiratory symptoms, medical mask should be used by mother during feeding
- ☒ Practice hand hygiene before and after contact with child
- ☒ Routine cleaning and disinfection all surfaces those are touched
- ☒ If mother is too unwell to breast feed or express breast milk, possibility re-lactation after a gap should be explored.

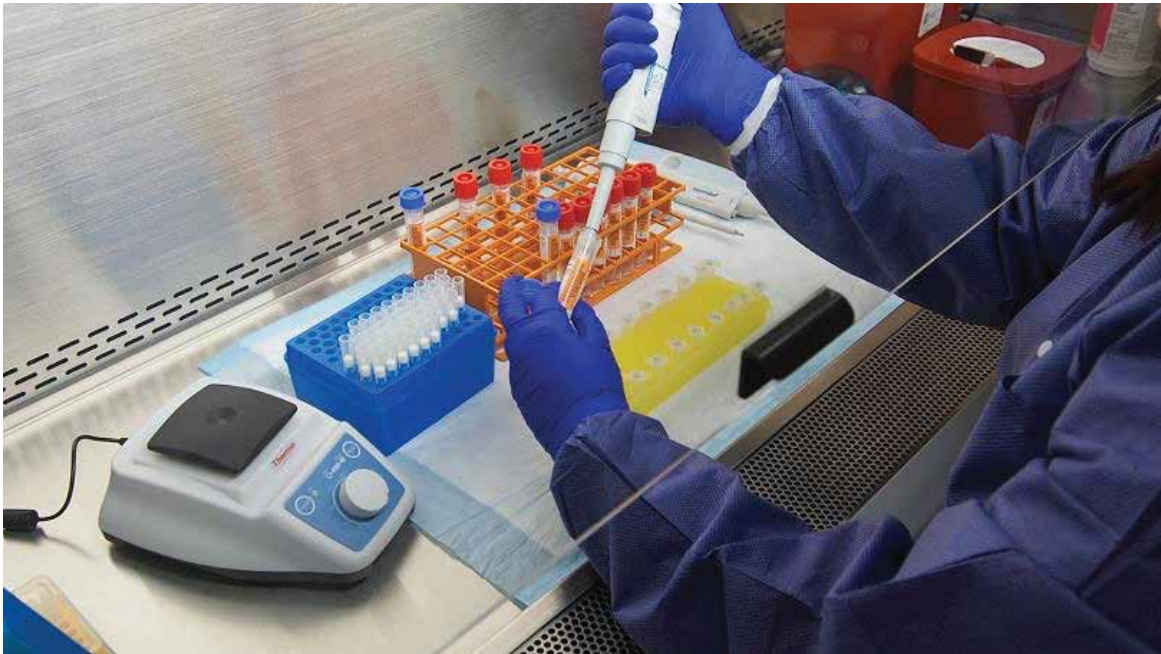
Patients with Comorbidities

- ☒ Patients with COVID-19 with mild symptoms and co-morbid conditions (diabetes mellitus, hypertension, cardio-vascular, renal or liver disease etc.) shall be admitted in isolation wards with monitoring facilities.
- ☒ Patients should continue with their prescribed medication for their underlying conditions as prescribed previously and any changes in the treatment should only be made by the treating physician
- ☒ COVID-19 patients with severe disease and comorbidities should be managed in HDUs
- ☒ In these patients, special attention should be paid to the worsening organ dysfunction and treatment may be adjusted by the HDU/ICU consultant according to patient's condition



SECTION - D

Laboratory Samples Collection & Transportation



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Laboratory Samples Collection and Transportation

Laboratory Testing Guiding Principles

- ☒ The decision to test should be based on clinical and epidemiological factors and linked to an assessment of the likelihood of infection.
- ☒ PCR testing of asymptomatic or mildly symptomatic contacts can be considered in the assessment of individuals who have had contact with a positive COVID-19 case.
- ☒ Rapid collection and testing of appropriate specimens from patients meeting the suspected case definition for COVID-19 is a priority for clinical management and outbreak control and should be guided by a laboratory expert.

Recommended Screening Test

- ☒ Routine confirmation of cases of COVID-19 is based on detection of unique sequences of virus RNA by NAAT such as real-time reverse-transcription polymerase chain reaction (RT-PCR) with confirmation by nucleic acid sequencing when necessary.
- ☒ RNA extraction should be done in a biosafety cabinet in a BSL-2 or equivalent facility.
- ☒ When there are inconclusive results, the patient should be resampled and or same sample may be re-tested where advised to obtain a reliable test result.
- ☒ If a negative result is obtained from a patient with a high index of suspicion for SARS-CoV-2 infection, particularly when only upper respiratory tract specimens were collected, additional specimens, including from the lower respiratory tract if possible, should be collected and tested.

Specimen Collection and Shipment

Specimens

- Upper respiratory specimens: nasopharyngeal and oropharyngeal swab or wash in ambulatory patients
- Lower respiratory specimens: sputum (if produced) and/or endotracheal aspirate or bronchoalveolar lavage in patients with more severe respiratory disease.
- ☒ Ensure that health care workers who collect specimens adhere rigorously to infection prevention and control (IPC) guidelines.

Table: Specimens to be collected from symptomatic patients and contacts

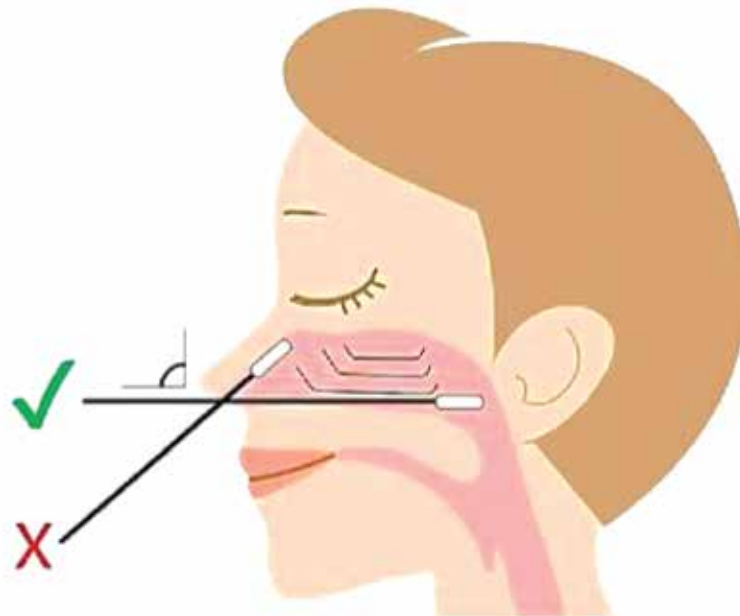
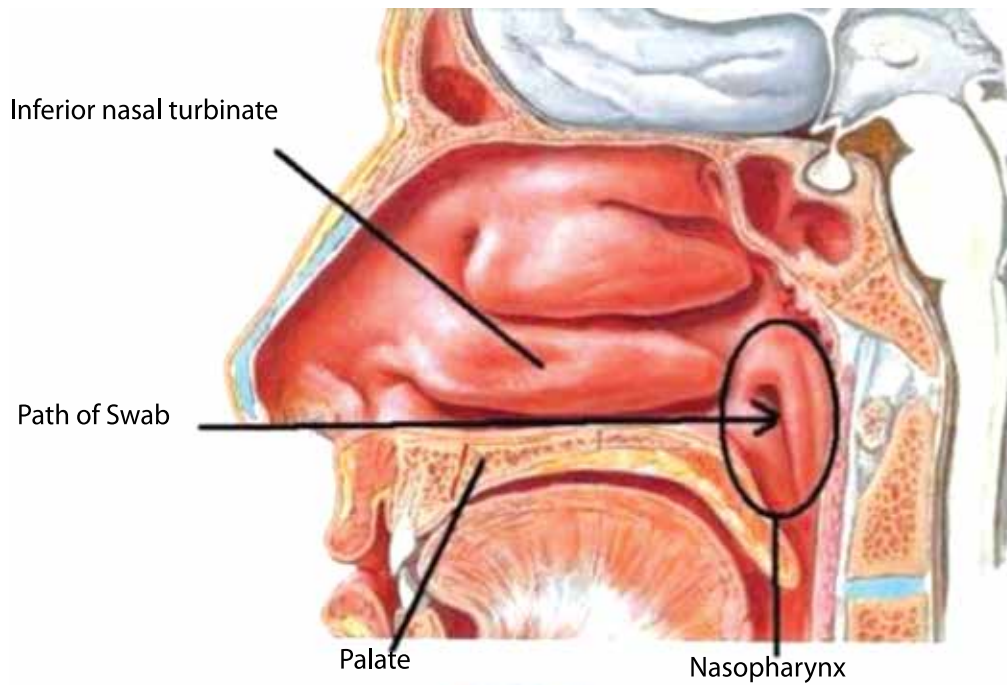
Type	Test	Type of Specimen	Timing
Patient	PCR	Upper respiratory tract - nasopharyngeal and - oropharyngeal swabs - nasopharyngeal wash/nasopharyngeal aspirate. Lower respiratory tract - sputum - aspirate - lavage Consider stools, whole blood, urine, and if deceased, material from autopsy.	<input checked="" type="checkbox"/> Collect on first contact with patient. <input checked="" type="checkbox"/> Repeat Test (24 hours apart) to monitor clearance after symptoms are resolved.
Contacts (In health-care setting associated	PCR	Nasopharyngeal and oropharyngeal swabs.	Within incubation period of last documented contact.
outbreaks or other settings where contacts have symptoms, or where asymptomatic contacts have had high-intensity contact with a COVID-19 case).			
Serology will be considered once validated and available.			

Sample Collection Procedure

For initial diagnostic testing for COVID-19, CDC recommends collecting and testing an upper respiratory nasopharyngeal swab (NP). Nasopharyngeal sample is the preferred choice for swab based SARS-CoV-2 testing. Collection of oropharyngeal swabs (OP) is a lower priority and should and if collected should be combined in the same tube as the NP. Place swabs immediately into sterile tubes containing 2-3 ml of viral transport media.

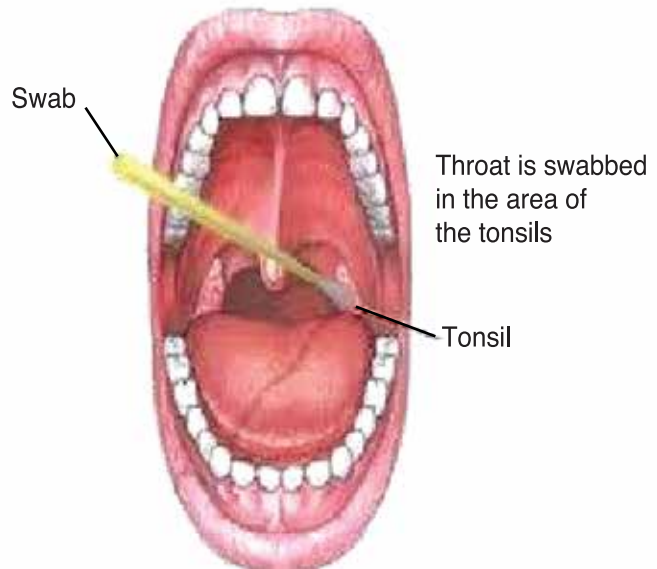
a) Nasopharyngeal swab (NOT nasal swab):

- Blow nose and look for any obstruction. (In case of obstruction, take oropharyngeal swab) • Hold swab between your thumb and forefinger with the shaft resting on your middle finger.
- Patient tilts head back, and you place your hand on the patient's forehead.
- Insert swab into nostril, gently rotating inward until resistance is met.
- Rotate the swab 2-3 times and leave the swab for 4-5 seconds so that the material is absorbed.
- Withdraw the swab, remove hand from patient forehead, and place swab in vial with transport medium.
- Break off the end of broken swab so cap will close.
- Dispose of broken tip into sharps container.
- Tighten cap.



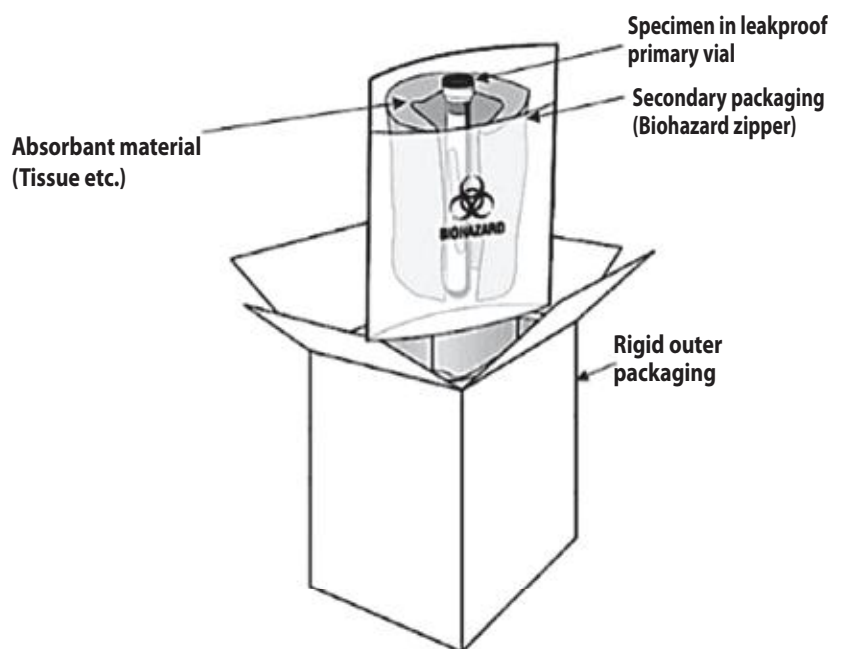
b) Oropharyngeal swab (e.g., throat swab):

- ☒ Hold swab between your thumb and forefinger with the shaft resting on your middle finger.
- ☒ Ask the patient open his/her mouth
- ☒ Rotate the swab 2-3 times.
- ☒ Withdraw the swab and place in vial with transport medium.
- ☒ Break off the end of broken swab so cap will close.
- ☒ Dispose of broken tip into sharps container.
- ☒ Tighten cap.



Sample Transportation

- ☒ All vials should be placed in a secondary container to minimize the potential for breakage or a spill.
- ☒ Specimens for virus detection should reach the laboratory as soon as possible after collection.
- ☒ For transport of samples for viral detection, use viral transport medium (VTM) containing antifungal and antibiotic supplements and shipped at 2-8°C.
- ☒ Avoid repeated freezing and thawing of specimens.
- ☒ Ensure good communication with the laboratory and provide needed information.
- ☒ Specimens should be correctly labelled and accompanied by a diagnostic request form. Laboratories undertaking testing for COVID-19 virus should adhere strictly to appropriate biosafety practices.



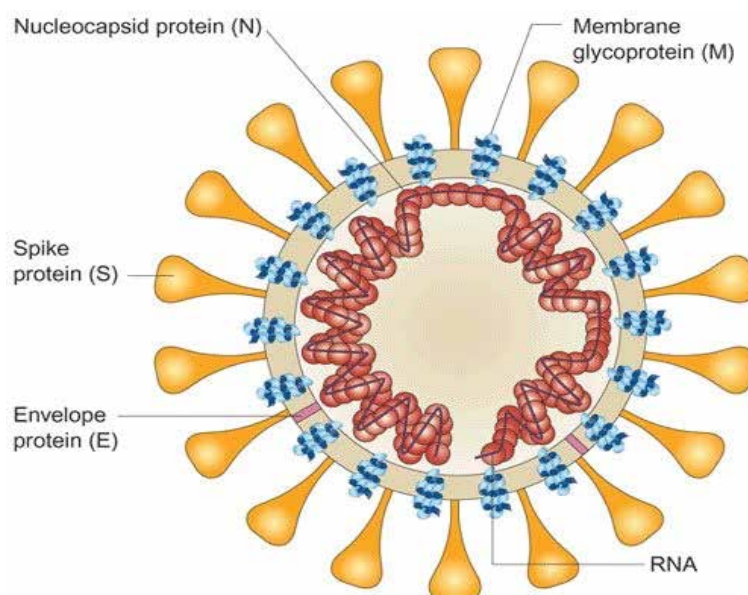
Reporting

Laboratories should follow national reporting requirements. In general, all test results, positive or negative, should be immediately reported to national authorities.

IPC Measures for Sample Collection, Handling and Transportation

All specimens collected for laboratory investigations should be regarded as potentially infectious. HCWs who collect, handle or transport any clinical specimens should adhere rigorously to the following standard precaution measures and biosafety practices to minimize the possibility of exposure to pathogens.

- ☒ Ensure that HCWs who collect specimens use appropriate PPE (i.e., eye protection, a medical mask, a long-sleeved gown, gloves). If the specimen is collected with an aerosol-generating procedure, personnel should wear a particulate respirator (N95)
- ☒ Ensure that all personnel who transport specimens are trained in safe handling practices and spill decontamination procedures
- ☒ Place specimens for transport in leak-proof specimen bags (i.e., secondary containers) 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 (i.e., the primary container), and a clearly written laboratory request form
- ☒ Ensure that laboratories in health care facilities adhere to appropriate biosafety practices and transport requirements, according to the type of organism being handled
- ☒ Deliver all specimens by hand whenever possible. DO NOT use pneumatic-tube systems to transport specimens
- ☒ Document clearly each patient's full name, date of birth and suspected COVID-19 on the laboratory request form.
- ☒ Notify the laboratory as soon as possible that the specimen is being transported.



Sample Collection and Transportation Protocols

	Activity	When	Who
1	Provision of Viral Transport Medium/ (VTM) cold boxes	Available with the DHA-RRT (to be handed over to HF Focal Person in advance)	Punjab reference labs and other labs as notified by the Government
2	Sample collection	Immediate on reporting to the HGU/HF	Microbiologist/ trained hospital based staff
3	Sample sealing in NIH provided VTM/ cold chain box and filing of Lab request form	Immediately after sample collection	Microbiologist/ skilled hospital based staff
4	Sample transportation to NIH or designated provincial Lab	Immediately	DSC of DHA through designated courier service/ Special messenger
5	Disinfection of cold box	Immediate after sample delivery to the Lab	Lab staff

Sample Collection Priority

TESTING GUIDELINES FOR SARS-COV2

Priority Level	Guidelines
P-1	<ul style="list-style-type: none"> • Symptomatic patients with close contact with confirmed case of COVID-19 or travel to countries where it is epidemic • Those Indoor patients who have fever and respiratory symptoms and are also immunocompromised • Symptomatic Healthcare Workers dealing with COVID-19 patients • Those Indoor patients whose symptoms cannot be otherwise explained
P-2	<ul style="list-style-type: none"> • Those people who fulfil the criteria of Case Definition and have Risk Factors
P-3	<ul style="list-style-type: none"> • People in Quarantine, Staff dealing with them or people involved in research related to Coronavirus
Non-Priority	<ul style="list-style-type: none"> • Individuals without Symptoms

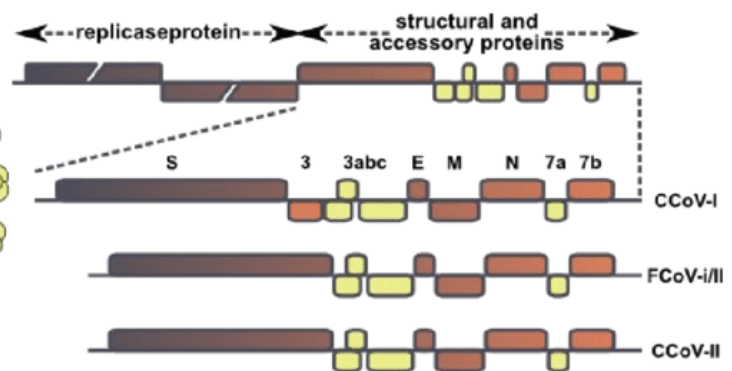
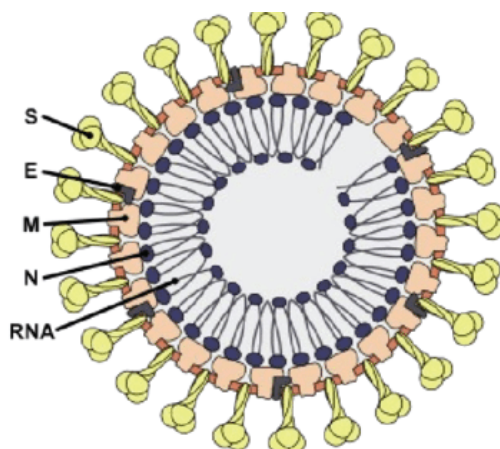
Updated on 29 Mar 2020

<https://www.nih.org.pk/novel-coronavirus-2019-ncov>

<https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html>

COVID-19 VIRUS LABORATORY TEST REQUEST FORM

Submitter information			
NAME OF SUBMITTING HOSPITAL, LABORATORY, or OTHER FACILITY			
Physician			
Address			
Phone number			
Case definition: ²	<input type="checkbox"/> Suspected case <input type="checkbox"/> Probable case		
Patient info			
First name		Last name	
Patient ID number		Date of Birth	Age:
Address		Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unkown
Phone number			
Specimen information			
Type	<input type="checkbox"/> Nasopharyngeal and oropharyngeal swab <input type="checkbox"/> Bronchoalveolar lavage <input type="checkbox"/> Endotracheal aspirate <input type="checkbox"/> <input type="checkbox"/> Nasopharyngeal aspirate <input type="checkbox"/> Nasal wash <input type="checkbox"/> Sputum <input type="checkbox"/> Lung tissue <input type="checkbox"/> Serum <input type="checkbox"/> Whole blood <input type="checkbox"/> Urine <input type="checkbox"/> Stool <input type="checkbox"/> Other		
All specimens collected should be regarded potentially infectious and you must contact the reference laboratory before sending samples.			
All samples must be sent in accordance with category B transport requirements.			
Please tick the box if your clinical sample is post mortem <input type="checkbox"/>			
Date of collection		Time of collection	
Priority status			
Clinical details			
Date of symptom onset:			
Has the patient had a recent history of travelling to as affected area?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Country	
		Return Date	
Has the patient had contact with a confirmed case?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unkown <input type="checkbox"/> Other exposure:		
Additional Comments			



S – spike protein; E – envelope protein; M – membrane protein; N – nucleocapsid protein; RNA – genomic RNA. Virion structure adapted from <http://www.expasy.ch/viralzone/>. Genome structure adapted from Decaro and Buonavoglia, 2008.

SECTION - E

Infection Prevention and Control



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Infection Prevention and Control

Infection prevention and control (IPC) is the practical discipline concerned with preventing healthcare-associated infection and is an essential part of the health care infrastructure. IPC measures in health-care settings are of central importance to the safety of patients, health-care workers and the environment, and to the management of communicable disease threats to the global and local community. Its purpose in health care is as follows:

1. To prevent the occurrence of healthcare-associated infections in patients, health-care workers, visitors and other persons associated with health-care settings;
2. To contribute to a coordinated response to control community-acquired infectious diseases, endemic or epidemic, that may be “amplified” via health care;
3. To contribute to preventing the emergence of antimicrobial resistance and/or dissemination of resistant strains of microorganisms; and
4. To minimize the environmental impact of these infections or their management.

Although knowledge of transmission modes is ever-evolving, current evidence indicates that the primary mode of transmission of SARS-CoV-2 like other viruses is through droplets, but transmission through contact (including hand contamination followed by self-inoculation) or infectious respiratory aerosols at short range can also happen.

Scope

This document provides recommendations and other information relating to IPC measures for ARIs in health-care settings, with specific emphasis on SARS-CoV-2 that has the potential for rapid spread. SARS-CoV-2 has been added to the list of pathogens that may constitute a Public Health Emergency of international concern (PHEIC).

Understanding Important Terms

Droplet Transmission

The spread of an infectious agent caused by the dissemination of droplets. Droplets are primarily generated from an infected (source) person during coughing, sneezing and talking. Transmission occurs when these droplets that contain microorganisms are propelled (usually < 1 m) through the air and deposited on the conjunctivae, mouth, nasal, throat or pharynx mucosa of another person. Most of the volume (> 99%) comprises large droplets that travel short distances (< 1 m)

and do not remain suspended in the air. Thus, special air handling and ventilation are not required to prevent droplet transmission.

Contact Transmission

The spread of an infectious agent caused by physical contact of a susceptible host with people or objects. Direct contact transmission involves both a direct body-surface-to-body-surface contact and physical transfer of microorganisms between an infected or colonized person and a susceptible host. Indirect contact transmission involves contact of a susceptible host with a contaminated intermediate object (e.g. contaminated hands) that carries and transfers the microorganisms.

Airborne Transmission

The spread of an infectious agent caused by the dissemination of droplet nuclei that remain infectious when suspended in air over long distances and time.

Clinical Triage

A system by which patients are screened for specific signs, symptoms and epidemiological clues upon initial contact with the health-care system, for the purpose of determining further diagnostic tests, isolation precautions, treatment and reporting.

Cohorting

The placement of patients infected with the same laboratory-confirmed pathogens in the same designated unit, zone or ward. This term is also frequently applied to grouped patient placement based on clinical and epidemiological information without laboratory confirmation of the pathogen.

Hand Hygiene

A general term that applies to handwashing (with soap & water), antiseptic handwashing (sanitizers), antiseptic hand rubbing or surgical hand antisepsis.

Respiratory Hygiene

The practice of covering the mouth and nose during coughing or sneezing (using a medical mask, cloth mask, tissues, a sleeve or flexed elbow), followed by hand hygiene, to reduce the dispersal of respiratory secretions that may contain infectious particles.

Cleaning

The removal of dirt from a device or surface, either by physically scrubbing with a surfactant or detergent and water; or through an energy-based process (e.g. ultrasonic cleaner)

Disinfection

A process that eliminates all viable pathogenic microorganisms (other than bacterial spores) from inanimate objects.

Medical/ Surgical Mask

As personal protective equipment, a facial mask is intended to protect caregivers and health-care workers against droplet-transmitted pathogens.

Particulate Respirator

Also known as a filtering face piece respirator. This is a type of facial mask that uses a filter as an integral part of the face piece, or in which the entire face piece is composed of the filtering medium and a means of sealing to the face. One such example is N-95 mask.

Precautions for Prevention of Infectious Agents

There are two tiers of precautions to prevent transmission of infectious agents:

Standard Precautions

Transmission-Based Precautions

Standard Precautions

- ☒ Standard Precautions are intended to be applied to the care of all patients in all healthcare settings, regardless of the suspected or confirmed presence of an infectious agent.
- ☒ Standard Precautions include: hand hygiene; use of gloves, gown, mask, eye protection, and face shield, depending on the anticipated exposure;
- ☒ Some new elements of Standard Precautions that are evolved during the course of recent epidemic responses are:
 - o Respiratory/ Cough Etiquettes
 - o use of masks for insertion of catheters or injection of material into spinal or epidural spaces via lumbar puncture procedures
 - o Safe Injection Practices

Transmission Based Precautions

- ☒ Transmission-Based Precautions are used when the route(s) of transmission is (are) not completely interrupted using Standard Precautions alone.
- ☒ For some diseases that have multiple routes of transmission (e.g., SARS), more than one Transmission-Based Precautions category may be used.
- ☒ Transmission Based Precautions include:

Contact Precautions

- Intended to prevent transmission of infectious agents which are spread by direct or indirect contact with the patient or the patient's environment
- Healthcare personnel caring for patients on Contact Precautions wear a gown and gloves for all interactions that may involve contact with the patient or potentially contaminated areas in the patient's environment.
- Contact precautions also include appropriate 'Donning' and 'Doffing' of PPE. (Link of donning and doffing for video following links
https://www.cdc.gov/vhf/ebola/hcp/ppe-training/n95respirator_coveralls/donning_01.html
https://www.cdc.gov/vhf/ebola/hcp/ppe-training/n95Respirator_Coveralls/doffing_01.html

Droplet Precautions

- Droplet Precautions are intended to prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions
- A single patient room is preferred for patients who require Droplet Precautions.
- Spatial separation of ≥ 3 feet and drawing the curtain between patient beds is especially important for patients in multi-bed rooms with infections transmitted by the droplet route.
- Healthcare personnel wear a medical/ surgical mask for close contact with infectious patient.

Airborne Precautions

- Airborne Precautions prevent transmission of infectious agents that remain infectious over long distances when suspended in the air
- The preferred placement for patients who require Airborne Precautions is in an airborne infection isolation room with negative air pressure
- In settings where Airborne Precautions cannot be implemented due to limited engineering resources, masking the patient, placing the patient in a dedicated isolation with the strict barrier nursing, and providing N95 or higher level respirators reduce likelihood of airborne transmission
- Airborne precautions are required especially when Healthcare provider is performing any aerosol generating procedure upon suspected patient like intubation, tracheal lavage etc.

PPE should be used based on the risk of exposure (e.g., type of activity) and the transmission dynamics of the pathogen (e.g., contact, droplet or aerosol). The overuse of PPE will have a further impact on supply shortages. The type of PPE used when caring for COVID-19 patients will vary according to the setting and the type of personnel and activity. The recommendation of WHO according to type of exposure and required protection levels are given in the table below:

Table: Recommended type of personal protective equipment (PPE) to be used in the context of COVID-19 disease

Setting	Target personnel or patients	Activity	Type of PPE or Procedure
Healthcare Facilities			
Inpatient Care			
Patient Room	Health Workers	Providing direct care to COVID-19 patients	<input checked="" type="checkbox"/> Medical/Surgical Mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Eye Protection (goggles or face shield).
		Aerosol generating procedures performed on COVID-19 patients	<input checked="" type="checkbox"/> N95 Mask <input checked="" type="checkbox"/> Gown/ Tyvek Suite <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Eye protection
	Cleaners	Entering the room of COVID-19 patients	<input checked="" type="checkbox"/> Medical Mask, <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Heavy duty gloves <input checked="" type="checkbox"/> Eye protection (if risk of splash from organic material or chemicals). <input checked="" type="checkbox"/> Boots or closed work shoes
	Visitors	Entering the room of COVID-19 patients	<input checked="" type="checkbox"/> Medical/ Surgical Mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Gloves
Other areas of patient transit (wards, corridors)	All staff including healthcare workers	Any activity that doesn't involve contact with COVID-19 patients	No PPE required

Triage Area	Healthcare Workers	Preliminary screening not involving direct contact	<input checked="" type="checkbox"/> Maintain spatial distance of 1 meter <input checked="" type="checkbox"/> No PPE required however HCW must observe standard care
	Patients with respiratory symptoms	Any	<input checked="" type="checkbox"/> Maintain spatial distance of 1 meter <input checked="" type="checkbox"/> Provide medical mask if tolerated by patient
	Patient without respiratory symptoms	Any	No PPE required however HCW must observe standard care
Laboratory	Lab Technician	Manipulation of respiratory samples	<input checked="" type="checkbox"/> Medical/ Surgical mask <input checked="" type="checkbox"/> N-95 masks according to local context and policies <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Eye Protection (if risk of splash)
Administrative Areas	All staff including healthcare workers	Administrative tasks that don't involve contact with COVID-19 patients	No PPE required
Outpatient Facilities			
Consultation Room	Healthcare Workers	Physical Examination of patients with respiratory symptoms	<input checked="" type="checkbox"/> Medical/ Surgical Mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Eye protection

		Physical examination of patients without respiratory symptoms	PPE according to standard precautions and risk assessment
	patients with respiratory symptoms	Any	Provide Medical mask if Tolerated
	patients without respiratory symptoms	Any	No PPE required
	Cleaners	After and between consultations with patients with respiratory symptoms	<input checked="" type="checkbox"/> Medical mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Heavy duty gloves <input checked="" type="checkbox"/> Eye protection (if risk of splash from organic material or chemicals) <input checked="" type="checkbox"/> Boots or closed work shoes
Waiting Room	Patients with respiratory symptoms	Any	Provide medical mask if tolerated Immediately move the patient to an isolation room or separate area away from others; If is not feasible, ensure spatial distance of at least 1 m from other patients
	Patients without respiratory symptoms	Any	No PPE required Spatial distance of at least 1 meter from other patients

Administrative area	All staff including healthcare workers	Administrative tasks	No PPE required Hand Hygiene and Respiratory etiquettes
Triage	Healthcare workers	Preliminary screening not involving direct contact	<input checked="" type="checkbox"/> Maintain spatial distance of 1 meter <input checked="" type="checkbox"/> No PPE required however HCW must observe standard care
	Patients with respiratory symptoms	Any	<input checked="" type="checkbox"/> Maintain spatial distance of 1 meter <input checked="" type="checkbox"/> Provide medical mask if tolerated
	Patients without respiratory symptoms	Any	No PPE required
Community			
Home	Patients with respiratory symptoms	Any	<input checked="" type="checkbox"/> Maintain spatial distance of 1 meter <input checked="" type="checkbox"/> Provide medical mask if tolerated, except when sleeping
	Caregivers	Entering the patient's room but not providing direct care or assistance	Medical mask
		Providing direct care or when handling stool, urine or waste from COVID-19	<input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Medical mask <input checked="" type="checkbox"/> Apron (if risk of splash) <input checked="" type="checkbox"/> Eye protection

		patient being cared for at home.	
	Healthcare Workers	Providing direct care or assistance to a COVID-19 patient at home	<input checked="" type="checkbox"/> Medical mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Eye protection
Public areas (e.g., schools, shopping malls, train/bus stations)	Individuals without respiratory symptoms	Any	No PPE required However, observe spatial distancing, hand hygiene and respiratory hygiene
Points of Entry			
Administrative areas	All staff	Any	No PPE required
Screening Area	Staff	First screening (temperature measurement) not involving direct contact	<input checked="" type="checkbox"/> Maintain spatial distance of at least 1 meter. <input checked="" type="checkbox"/> No PPE required <input checked="" type="checkbox"/> Observe standard precautions
		Second screening (i.e., interviewing passengers with fever for clinical symptoms suggestive of COVID-19 disease and travel history).	<input checked="" type="checkbox"/> Medical Mask <input checked="" type="checkbox"/> Gloves
	Cleaners	Cleaning Isolation/Assessment area	<input checked="" type="checkbox"/> Medical/ Surgical Mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Heavy duty gloves <input checked="" type="checkbox"/> Eye protection (if risk of splash from organic material or chemicals).

			<ul style="list-style-type: none"> ☒ Boots or closed work shoes
Temporary Isolation Room	Staff	Entering the isolation area but not providing direct assistance	<ul style="list-style-type: none"> ☒ Maintain spatial distance of at least 1 meter ☒ Medical mask ☒ Gloves
	Staff, Healthcare workers	Assisting passenger being transported to a healthcare facility	<ul style="list-style-type: none"> ☒ Medical/ Surgical Mask ☒ Gown ☒ Gloves ☒ Eye protection
	Cleaners	Cleaning Isolation Area	<ul style="list-style-type: none"> ☒ Medical/ Surgical Mask ☒ Gown ☒ Heavy duty gloves ☒ Eye protection (if risk of splash from organic material or chemicals). ☒ Boots or closed work shoes
Ambulance or Transfer vehicle	Healthcare workers	Transporting suspected COVID-19 patients to the referral healthcare facility	<ul style="list-style-type: none"> ☒ Medical/ Surgical Mask ☒ Gloves ☒ Gowns ☒ Eye protections
	Drivers	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment is separated from the COVID-19 patient.	<p>Maintain spatial distance of at least 1 meter</p> <p>No PPE required</p>

		Assisting with loading or unloading patients with suspected COVID-19 disease	<input checked="" type="checkbox"/> Medical/ Surgical Mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Eye protection
		No direct contact with the patient with suspected COVID-19 but no separation between driver's and patient's compartments	<input checked="" type="checkbox"/> Medical/ Surgical Mask
	Patient with suspected COVID-19 disease	Transport to the referral healthcare facility	<input checked="" type="checkbox"/> Medical/ Surgical Mask if tolerated
	Cleaners	Cleaning after and between transport of patients with Suspected COVID-19 disease to the referral healthcare facility	<input checked="" type="checkbox"/> Medical/ Surgical Mask <input checked="" type="checkbox"/> Gown <input checked="" type="checkbox"/> Heavy duty gloves <input checked="" type="checkbox"/> Eye protection) if risk of splash from organic material or chemicals). <input checked="" type="checkbox"/> Boots or closed work shoes
Community			
Anywhere	Rapid Response Team (RRT) investigators	Interview suspected or confirmed COVID-19 patients or their contacts	No PPE if done remotely (e.g., by telephone or video conference).
		In-person interview of suspected or confirmed COVID-19 patients without direct contact	<input checked="" type="checkbox"/> Medical/ Surgical Mask <input checked="" type="checkbox"/> Gloves <input checked="" type="checkbox"/> Maintain spatial distance of at least 1 meter

			<ul style="list-style-type: none"> ☒ Observe Hand Hygiene and respiratory hygiene during and after the interview ☒ Confirmed or suspected COVID-19 patients should wear a medical mask if tolerated
		In person interview with asymptomatic contacts of COVID-19 patients	<ul style="list-style-type: none"> ☒ Maintain spatial distance of at least 1 meter ☒ No PPE required (however under local context, standard PPE may be used). ☒ Don't touch anything in the household environment ☒ Practice hand hygiene and respiratory hygiene during and after the interview

Note: Since in current provincial context and according to the policy of Government of Punjab, Home isolation and care of COVID-19 patients is not advised, so the PPE advised under section Patient care at Home in this table will be applicable to care of COVID-19 positive cases in Quarantine sites.

Keeping in view the local context and addressing the concerns among hospital staff, Department of Specialized Healthcare and Medical Education, Government of Punjab has notified levels of care and required protections in different setting of healthcare. The notified levels are required PPE are as us under:

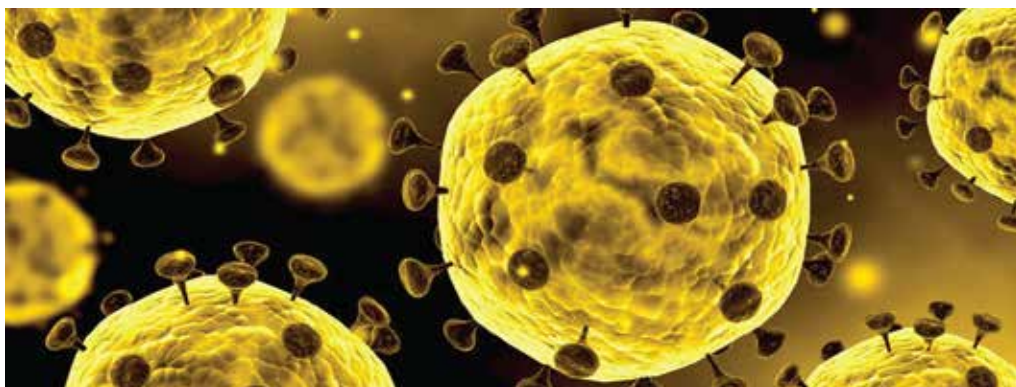


Table 2: Guidelines for Hospitals / Health Facilities Dealing with COVID-19 Patients

PROTECTION LEVEL	PROTECTIVE EQUIPMENT	SCOPE OF APPLICATION
Level-I	<ul style="list-style-type: none"> ☒ Disposable Surgical Mask ☒ Disposable Examination Gloves ☒ Sanitizer or Soap with Water 	<ul style="list-style-type: none"> ☒ General OPD ☒ General Emergency ☒ Pre-Examination Triage
Level-II	<ul style="list-style-type: none"> ☒ Disposable Cap ☒ Disposable Surgical Mask ☒ <u>Full sleeve gowns</u> ☒ Disposable latex Gloves ☒ Sanitizer or Soap with water 	<ul style="list-style-type: none"> ☒ Triage center for COVID-19 ☒ General Wards ☒ Short stay areas ☒ Regular Labor rooms and Operation theaters
Level-III	<ul style="list-style-type: none"> ☒ Disposable Cap ☒ N 95 Mask ☒ Tyvek Suit ☒ Disposable latex Gloves ☒ Goggles ☒ Shoe Covers 	<ul style="list-style-type: none"> ☒ Isolation Ward / Treatment Area for COVID-19 ☒ HDU/ICU for COVID-19 ☒ Radiological Imaging of suspected / confirmed cases for COVID-19 ☒ Cleaning of Surgical / Interventional equipment ☒ Sample Collection & Laboratory for COVID-19 ☒ Labor rooms and Operation Theaters if a suspected/confirmed case of COVID-19 is being managed/operated upon

☒ *Adopted from notification of SHC &ME Department under No. SO (PHP) 9-98/2002 (14), Dated 24th March, 2020*

Infection Prevention and Control Guiding Principles

The principles of IPC for COVID-19 patient care include:

- A. Early and rapid recognition and Source Control;
- B. Application of routine IPC precautions (Standard and Contact Precautions) for all patients;
- C. Additional precautions in selected patients (e.g. based on the type and level of exposure);

D. Establishment of an IPC system and structure for the health-care facility, to support IPC activities.

IPC strategies in health-care facilities are commonly based on early recognition and source control, administrative controls, environmental and engineering controls, and personal protective equipment (PPE).

A. Triage, Early Recognition and Source Control

Clinical triage includes a system for assessing all patients at admission allowing early recognition of possible SARS-COV 2 infection and immediate isolation of patients with suspected SARS-COV 2 infection in an area separate from other patients (source control).

To facilitate the early identification of cases of suspected COVID-19 infection, healthcare facilities should:

- ☒ Encourage HCWs to use updated Case Definitions as notified by the Provincial Health Department;
- ☒ Establish a well-equipped triage station at the entrance of health care facility, supported by trained staff;
- ☒ Post signs in public areas reminding symptomatic patients to alert HCWs.

The promotion of hand hygiene and respiratory hygiene are essential preventive measures.

B. Applying standard precautions for all patients

Standard precautions include hand and respiratory hygiene, the use of appropriate personal protective equipment (PPE) according to risk assessment, injection safety practices, safe waste management, proper linens, environmental cleaning and sterilization of patient-care equipment.

Ensure that the following respiratory hygiene measures are used:

- ☒ 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 COVID-19 infection while they are in waiting/public areas or in Cohorting rooms;
- ☒ Perform hand hygiene after contact with respiratory secretions.
- ☒ HCWs should apply the WHO's My 5 Moments for Hand Hygiene approach before touching a patient, before any clean or aseptic procedure is performed, after exposure to body fluid, after touching a patient, and after touching a patient's surroundings.
- ☒ The rational, correct, and consistent use of PPE also helps to reduce the spread of pathogens.

- ☒ The use of PPE effectiveness strongly depends on adequate staff training, adequate supplies, appropriate hand hygiene and specifically appropriate human behavior.
- ☒ Ensure environmental cleaning and disinfection procedures are followed consistently and correctly.
- ☒ Thoroughly clean environmental surfaces with water and detergent and applying commonly used hospital-level disinfectants (such as sodium hypochlorite)

C. Contact and Droplet Precautions

- ☒ In addition to using standard precautions, all individuals, including family members, visitors and HCWs, should use contact and droplet precautions before entering the room of suspected or confirmed COVID-19 patients
- ☒ A single-patient room is preferred for patients who require contact precautions.
- ☒ In multi-patient rooms, ≥ 3 feet spatial separation between beds is advised to reduce the opportunities for inadvertent sharing of items between the infected/colonized patient and other patients.
- ☒ Spatial separation of ≥ 3 feet and drawing the curtain between patient beds is especially important for patients in multi-bedrooms with infections transmitted by the droplet route
- ☒ Healthcare personnel caring for patients on contact precautions wear full sleeve gown and gloves for all interactions that may involve contact with the patient or potentially contaminated areas in the patient's environment.
- ☒ HCWs should wear eye protection (goggles) or facial protection (face shield) to avoid contamination of mucous membranes;
- ☒ The use of boots, coverall and apron is not required during routine care;
- ☒ After patient care, appropriate doffing and disposal of all PPE's and hand hygiene should be carried out;
- ☒ A new set of PPE's is needed, when care is given to a different patient;
- ☒ Equipment should be either single-use or disposable or dedicated equipment (e.g., stethoscopes, blood pressure cuffs and thermometers).
- ☒ If equipment needs to be shared among patients, clean and disinfect it between use for each individual patient (e.g., by using ethyl alcohol 70%)
- ☒ HCWs should refrain from touching eyes, nose or mouth with potentially contaminated gloved or bare hands;
- ☒ Routinely clean and disinfect surfaces which the patient is in contact;
- ☒ Limit the number of HCWs, family members and visitors who are in contact with a suspected and confirmed COVID-19 patient;
- ☒ Maintain a record of all persons entering the patient's room, including all staff and visitors.

D. Aerosol/Airborne Precautions

- ☒ Some aerosol-generating procedures have been associated with an increased risk of transmission of coronaviruses (SARS-CoV and MERS-CoV), such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy
- ☒ The preferred placement for patients who require airborne precautions is in an isolation room with negative air pressure
- ☒ A respiratory protection program that includes education about use of respirators, fit-testing, and user seal checks is required in any facility designated to manage such patients.
- ☒ In settings where airborne precautions cannot be implemented due to limited engineering resources, masking the patient, placing the patient in a dedicated isolation with the strict barrier nursing, and providing N95 to health care worker along with full PPE reduce likelihood of airborne transmission
- ☒ Note that if the wearer has facial hair (i.e., a beard) it may prevent a proper respirator fit;

E. Administrative and Environmental Measures

- ☒ Administrative controls and policies for the prevention and control of transmission of COVID-19 infections within the healthcare setting include, but may not be limited to:
 - ☒ Establishing sustainable IPC infrastructures and activities;
 - ☒ Establishing a surveillance process for acute respiratory infections potentially caused by SARS-COV 2 among HCWs;
 - ☒ Preventing overcrowding, especially in the emergency department;
 - ☒ Providing dedicated waiting areas for suspected patients;
 - ☒ Appropriately isolating hospitalized patients;
 - ☒ Ensuring adequate supplies of PPE;
 - ☒ Ensure the adherence of IPC policies and procedures for all facets of health care.
 - ☒ Monitoring HCW compliance with standard precautions and providing mechanisms for improvement as needed.
- ☒ Environmental measures aim to ensure adequate ventilation in all areas in the healthcare facility, as well as adequate environmental cleaning.
- ☒ Additionally, spatial separation of at least 1 meter should be maintained between all patients.
- ☒ Both spatial separation and adequate ventilation can help reduce the spread of many pathogens in the healthcare setting

Standard Operating Procedures in Different Settings of Healthcare

A- Outpatient Care

The basic principles of IPC and standard precautions should be applied in all health care facilities, including outpatient care and primary care. For COVID-19 infection, the following measures should be adopted:

- ☒ Triage and early recognition;
- ☒ Emphasis on hand hygiene, respiratory hygiene and medical masks to be used by patients with respiratory symptoms;
- ☒ Appropriate use of contact and droplet precautions for all suspected cases;
- ☒ Prioritization of care of symptomatic patients;
- ☒ When symptomatic patients are required to wait, ensure they have a separate waiting area;
- ☒ Educate patients and families about the early recognition of symptoms, basic precautions to be used and which health care facility they should refer to.

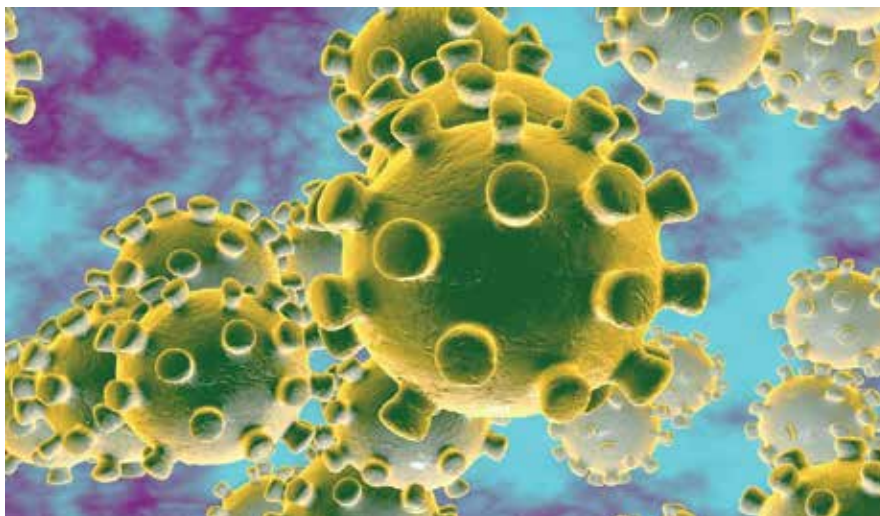
B- Inpatient Care

- ☒ Place patients of suspected or confirmed COVID-19 in adequately ventilated rooms.
- ☒ Ensure that appropriate handwashing facilities and hand-hygiene supplies are available.
- ☒ Post signs on the door indicating that the space is an isolation area.
- ☒ Remove all non-essential furniture and ensure that the remaining furniture is easy to clean, and does not conceal or retain dirt or moisture within or around it.
- ☒ Stock the PPE supply and linen outside the isolation room or area (e.g. in the change room).
- ☒ Place appropriate color coded waste bags in a bin. If possible, use a touch-free bin.
- ☒ Place a puncture-proof container for sharps disposal inside the isolation room or area.
- ☒ Keep the patient's personal belongings to a minimum and within patient's reach.
- ☒ Dedicate non-critical patient-care equipment (e.g. stethoscope, thermometer, blood pressure cuff and sphygmomanometer) to the patient, if possible. Thoroughly clean and disinfect patient-care equipment that is required for use by other patients before use.
- ☒ Avoid sharing of equipment. If sharing is unavoidable, ensure that reusable equipment is appropriately disinfected between patients
- ☒ Place an appropriate container with a lid outside the door for equipment that requires disinfection or sterilization.
- ☒ Implement Isolation precautions and protocols including standard precautions and droplet precautions for all patients and airborne precautions for patients on mechanical support.
- ☒ Administrative policies that address adequate staffing and supplies, training of staff, education of patients and visitors, and a strategy for risk communication are particularly needed.

- ☒ Apply cohorting of patients where single occupancy isolation care is not possible.
- ☒ For patient-care units that house patients with COVID-19, wherever possible, assign health-care workers who are experienced with IPC for ARIs and outbreak settings. Also, if possible, these workers should not “float” or be assigned to other patient-care areas.
- ☒ Limit the number of people entering the assigned unit or area for isolation, cohorting or special measures, to the minimum number required for patient care and support.
- ☒ Set up a telephone or other method of communication in the isolation room or area to enable patients, family members or visitors to communicate with health-care workers. This may reduce the number of times the workers need to don PPE to enter the room or area.

C- Transport of Patients Inside and Outside Healthcare Facilities

- ☒ For Pre-hospital care and transport of patient to the healthcare facility, use dedicated vehicle with trained staff, where possible.
- ☒ Avoid aerosol-generating procedures associated with risk of pathogen transmission (e.g. intubation) during pre-hospital care and transport, unless required for life-support.
- ☒ Ensure that transport vehicles have as high volumes of air exchange as possible (e.g. by opening the windows).
- ☒ Separate the driver’s and patients’ compartments whenever possible.
- ☒ Notify the receiving facility as soon as possible before arrival that a patient with a suspected COVID-19 is due to arrive, and indicate whether additional precautions are required.
- ☒ Avoid moving and transporting patients out of their room or area unless medically necessary. Use designated portable X-ray equipment and/or other designated diagnostic equipment.
- ☒ If transport is required, use predetermined transport routes to minimize exposure for staff, other patients and visitors, and have the patient using a medical mask;
- ☒ Ensure that HCWs who are transporting patients perform hand hygiene and wear appropriate PPE as described in this section;



D- SOPs for Families and Visitors

- ☒ Restrict the number of attendants and visitors in isolation facilities, if essential unnecessary visits should be discouraged.
- ☒ Don't allow minors and elderly or people with risk factor to visit the Isolation room and areas with COVID-19 patients
- ☒ When permitted, instruct visitors about the appropriate use of PPE and hand-hygiene before entry into an isolation room and removing PPE and this should be supervised by a healthcare worker.
- ☒ Evaluate family members and visitors with respiratory symptoms as possible cases of COVID-19 of potential concern
- ☒ In the case of a paediatric patient, encourage and support parents to accompany the child throughout the hospitalization, and advise them to ensure hand hygiene and an adequate use of PPE.

Donning and Doffing of Personal Protective Equipment

Before Entering the Isolation Room or Area:

- ☒ Collect all equipment needed;
- ☒ Perform hand hygiene with an alcohol-based hand rub (preferably when hands are not visibly soiled) or soap and water;
- ☒ Put on PPE in the order that ensures adequate placement of PPE items (See Annex)

Leaving the Isolation Room or Area

- ☒ Remove PPE in the isolation area or just outside it.
- ☒ Remove PPE in a manner that prevents self-contamination or self-inoculation with contaminated PPE or hands. General principles are:
 - o Remove the most contaminated PPE items first;
 - o Perform hand hygiene immediately after removing gloves;
 - o Remove the mask or particulate respirator last (by grasping the ties and discarding in a rubbish bin);
 - o Discard disposable items in a closed rubbish bin;
 - o Put reusable items in a dry (e.g. without any disinfectant solution) closed container; an example of the order in which to take off PPE when all PPE items are needed is gloves (if the gown is disposable, gloves can be peeled off together with gown upon removal), hand hygiene, gown, eye protection, mask or respirator, and hand hygiene (Annex).
- ☒ Perform hand hygiene with an alcohol-based hand rub (preferably) or soap and water whenever ungloved hands touch contaminated PPE items.

Use of Disinfectants

- ☒ Different types of disinfection are available and can be used according to Health-care facilities resources and protocols.
- ☒ Alcohol based and Chlorine based disinfectants are acceptable chemical disinfectants for healthcare settings if used appropriately.
- ☒ As with any other disinfectants, soiled surfaces need to be cleaned with water and detergent first.

Alcohol

- ☒ Alcohol is effective against most respiratory viruses including SARS-CoV-2.
- ☒ Ethyl alcohol (70%) is a powerful broad-spectrum germicide and is considered generally superior to isopropyl alcohol.
- ☒ Alcohol is often used to disinfect small surfaces (e.g. rubber stoppers of multiple-dose medication vials, and thermometers) and occasionally external surfaces of equipment (e.g. stethoscopes and ventilators).
- ☒ Since alcohol is flammable, limit its use as a surface disinfectant to small surface-areas and use it in well-ventilated spaces only.
- ☒ Prolonged and repeated use of alcohol as a disinfectant can also cause discoloration, swelling, hardening and cracking of rubber and certain plastics.

Chlorine Solution (Bleach)

- ☒ Bleach is a strong and effective disinfectant – its active ingredient sodium hypochlorite is effective in killing bacteria, fungi and viruses, including SARS-CoV-2.
- ☒ Diluted household bleach disinfects within 10–60 minutes' contact time,
- ☒ It is widely available at a low cost, and is recommended for surface disinfection in health-care facilities.
- ☒ Bleach irritates mucous membranes, the skin and the airways; decomposes under heat and light; and reacts easily with other chemicals.
- ☒ The use of bleach should be done with caution; ventilation should be adequate and consistent with relevant occupational health and safety guidance.
- ☒ Improper use of bleach, including deviation from recommended dilutions (either stronger or weaker), may reduce its effectiveness for disinfection and can injure health-care workers.

Chlorine Solution (High Test Hypochlorite-HTH70%)

- ☒ Chlorine HTH 70% is a broad spectrum disinfectant widely used globally for the disinfection purposes;
- ☒ HTH Chlorine is available in powder form and desired strength is achieved by mixing HTH Chlorine with water(Annex)

- ☒ It is important especially for the healthcare workers, involved in infection prevention and decontamination practices inside the dedicated isolation areas or high dependency units and in identified priority hotspots, to know about the exact chlorine concentrations and how to prepare it.

Procedures for preparing and using diluted bleach

To prepare and use diluted bleach:

- ☒ Use a mask, rubber gloves and waterproof apron; goggles also are recommended to protect the eyes from splashes;
- ☒ Mix and use bleach solutions in well-ventilated areas;
- ☒ Mix bleach with cold water (hot water decomposes the sodium hypochlorite and renders it ineffective);
- ☒ To obtain desired dilution please refer to the table below:

Table: Sodium hypochlorite: concentration and use





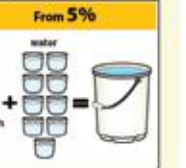




<p>Starting solution</p> <p>Most household bleach solutions contain 5% sodium hypochlorite (50000 ppm* available chlorine).</p>
<p>Recommended dilution</p> <p>1:100 dilution of 5% sodium hypochlorite is the usual recommendation. Use 1-part bleach to 99 parts cold tap water (1:100 dilutions) for disinfection of surfaces.</p> <p><i>Adjust ratio of bleach to water as needed to achieve appropriate concentration of sodium hypochlorite. For example, for bleach preparations containing 2.5% sodium hypochlorite, use twice as much bleach (i.e. 2 parts bleach to 98 parts water).</i></p>
<p>Available chlorine after dilution</p> <p>For bleach preparations containing 5% sodium hypochlorite, a 1:100 dilution will yield 0.05% or 500 ppm available chlorine.</p> <p><i>Bleach solutions containing other concentrations of sodium hypochlorite will contain different amounts of available chlorine when diluted.</i></p>
<p>Contact times for different uses</p> <p>Disinfection by wiping of nonporous surfaces: a contact time of ≥ 10 minutes is recommended.</p> <p>Disinfection by immersion of items: a contact time of 30 minutes is recommended.</p> <p>N.B. Surfaces must be cleaned of organic materials, such as secretions, mucus, vomit, faeces, blood or other body fluids before disinfection or immersion.</p>

*ppm: parts per million

Precautions for the use of bleach

- ☒ Bleach can corrode metals and damage painted surfaces.
- ☒ Strong concentration (0.5% chlorine solution) is used to disinfect objects, surfaces, and body fluids spills
- ☒ Low concentration (0.05% chlorine solution) is used to wash ungloved hands etc.
- ☒ Avoid touching the eyes. If bleach gets into the eyes, immediately rinse with water for at least 15 minutes, and consult a physician.
- ☒ Do not use bleach together with other household detergents, because this reduces its effectiveness and can cause dangerous chemical reactions. For example, a toxic gas is produced when bleach is mixed with acidic detergents, such as those used for toilet cleaning, and this gas can cause death or injury. If necessary, use detergents first, and rinse thoroughly with water before using bleach for disinfection.
- ☒ Undiluted bleach emits a toxic gas when exposed to sunlight; thus, store bleach in a cool, shaded place, out of the reach of children.
- ☒ Sodium hypochlorite decomposes with time. To ensure its effectiveness, purchase recently produced bleach, and avoid over-stocking.
- ☒ If using diluted bleach, prepare the diluted solution fresh daily. Label and date it, and discard unused mixtures 24 hours after preparation.
- ☒ Organic materials inactivate bleach; clean surfaces so that they are clear of organic materials before disinfection with bleach.
- ☒ Keep diluted bleach covered and protected from sunlight, and if possible in a dark container, and out of the reach of children.


How to Make Strong (0.5%) Chlorine Solution from Liquid Bleach
Use strong (0.5%) chlorine solution to clean and disinfect surfaces, objects, and body fluid spills.
Make new strong (0.5%) chlorine solution every day. Throw away any leftover solution from the day before.

	From 1.25%	From 2.6% or 8° chlorum	From 3.5% or 12° chlorum	From 5%
				
1	2a	2b	2c	2d
Make sure you are wearing extended PPE .	Pour 2 parts liquid bleach and 3 parts water into a bucket. Repeat until full.	Pour 1 part liquid bleach and 4 parts water into a bucket. Repeat until full.	Pour 1 part liquid bleach and 6 parts water into a bucket. Repeat until full.	Pour 1 part liquid bleach and 9 parts water into a bucket. Repeat until full.
				
3	4	5	6	
Stir well for 10 seconds.	Label bucket "Strong (0.5%) Chlorine Solution - Cleaning."	Cover bucket with lid.	Store in shade. Do not store in direct sunlight.	

Supplies Needed

- Measuring cup or liter bottle
- Bucket with lid
- Water
- Liquid bleach
- Stick for stirring
- Label

WARNING
Do NOT drink chlorine water.
Do NOT put chlorine water in mouth or eyes.



How to Make Strong (0.5%) Chlorine Solution from 70% Chlorine Powder

Use strong (0.5%) chlorine solution to clean and disinfect surfaces, objects, and body fluid spills.

Make new strong (0.5%) chlorine solution every day. Throw away any leftover solution from the day before.



1 Make sure you are wearing **extended PPE**.

2 Add 10 tablespoons of HTH (70% chlorine) to 20 liters of water.

3 Stir well for 10 seconds, or until the HTH has dissolved.

4 Wait 30 minutes before use.



5 Label bucket "Strong (0.5%) Chlorine Solution - Cleaning."



6 Cover bucket with lid.



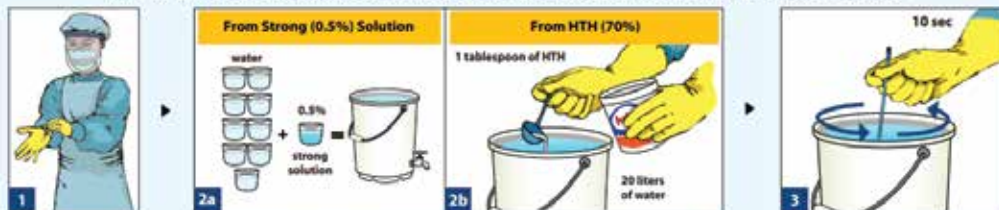
7 Store in shade. Do not store in direct sunlight.



How to Make Mild (0.05%) Chlorine Solution

Use mild (0.05%) chlorine solution to wash ungloned hands.

Make new mild (0.05%) chlorine solution every day. Throw away any leftover solution from the day before.



1 Make sure you are wearing **extended PPE**.

2a Pour 9 parts water and 1 part strong (0.5%) solution into a bucket. Repeat until full.

2b Add one tablespoon of HTH (70%) to 20 Liters of water in a bucket.

3 Stir well for 10 seconds, or until the HTH has dissolved



4 Wait 30 minutes before use.



5 Label bucket "Mild (0.05%) Chlorine Solution - Hand Washing."



6 Cover bucket with lid.



7 Place at hand washing stations.



Water, Sanitation, Hygiene, And Waste Management

The provision of safe water, sanitation, and hygienic conditions is essential to protecting human health during all infectious disease outbreaks, including the COVID-19 outbreak.

This interim guidance supplements the infection prevention and control (IPC) documents by summarizing WHO guidance on water, sanitation and health care waste relevant to viruses, including coronaviruses.

Ensuring good and consistently applied WASH and waste management practices in communities, homes, quarantine sites, and health care facilities will help prevent human-to-human transmission of the COVID-19 virus.

SARS-COV 2 Virus Transmission and Viability

- ☒ There are two main routes of transmission of the COVID-19 virus: respiratory and contact.
- ☒ Currently, there is no evidence about the survival of the COVID-19 virus in drinking-water or sewage.
- ☒ Approximately 2–10% of cases of confirmed COVID-19 disease present with diarrhea and two studies detected COVID-19 viral RNA fragments in the faecal matter of COVID-19 patients.
- ☒ However, there have been no reports of faecal–oral transmission of the COVID-19 virus.
- ☒ It is not certain how long the virus that causes COVID-19 survives on surfaces.
- ☒ In a recent review of the survival of human coronaviruses on surfaces found large variability, ranging from 2 hours to 9 days.

Wash in Health Care Settings

The following actions are particularly important:

- ☒ Providing enough safe drinking-water to staff, caregivers, and patients
- ☒ Managing excreta (faeces and urine) safely,
- ☒ Functional hand hygiene facilities should be present for all health care workers at all points of care and in areas where PPE is put on or taken off.
- ☒ In addition, functional hand hygiene facilities should be available for all patients, family members, and visitors, and should be available within 5 m of toilets, as well as in waiting and dining rooms and other public areas.
- ☒ Implementing regular cleaning and disinfection practices; and
- ☒ Safely managing health care waste.

Sanitation

- ☒ As part of an integrated public health policy, wastewater carried in sewerage systems should be treated in well-designed and well-managed centralized wastewater treatment works.

- ☒ People with suspected or confirmed COVID-19 disease should be provided with their own flush toilet or latrine.
- ☒ If it is not possible to provide separate toilets, the toilet should be cleaned and disinfected at least twice daily by a trained cleaner
- ☒ Staff and health care workers should have toilet facilities that are separate from those used by all patients.
- ☒ If the patient is unable to use a latrine, excreta should be collected in either a diaper or a clean bedpan and immediately and carefully disposed of into a separate toilet or latrine used only by suspected or confirmed cases of COVID-19. If a bedpan is used, after disposing of excreta from it, the bedpan should be cleaned with a neutral detergent and water, disinfected with a 0.5% chlorine solution, and then rinsed with clean water; the rinse water should be disposed of in a drain or a toilet or latrine.
- ☒ If diapers are used, they should be disposed of as infectious waste

Disposal of Waste

- ☒ Best practices for safely managing health care waste should be followed, including assigning responsibility and sufficient human and material resources to dispose of such waste safely.
- ☒ All health care waste produced during the care of COVID 19 patients should be collected safely in designated containers and bags, treated, and then safely disposed of.
- ☒ All who handle health care waste should wear appropriate PPE (boots, apron, long-sleeved gown, thick gloves, mask, and goggles or a face shield) and perform hand hygiene after removing it.

(Refer to SOPs issued by Infection Prevention and Control Program, P&SHC department Punjab for more explanation).

Preparing Dead body and Burial

On 25th March 2020, Government of Punjab has issued interim guidelines as “Infection Prevention and Control for the safe management of a dead body in the context of COVID-19”. In the light of new guidelines of WHO. Following protocols are recommended for handling of dead bodies and burial are:

1. Main Principle

The safety and well-being of everyone who attends the dead bodies is the foremost priority.

2. Designated Team

Body preparation and burial by designated gender sensitive team notified by the respective hospital and district health authority.

3. Family Counselling

- ☒ Family counselling to comply with SOPs to avoid contact with disease.
- ☒ If the family wishes only to view the body and not touch it, they may do so, using standard precautions at all times including hand hygiene.
- ☒ Family members should be given clear instructions not to touch or kiss the body;
- ☒ Children, older people (>60 years old), and anyone with underlying illnesses (such as respiratory illness, heart disease, diabetes, or compromised immune systems) should not be involved in preparation and handling of body.

4. Personal Protective Equipment

Teams and family member taking part in body preparation and burial MUST use PPEs according to level of exposure and as per these guidelines.

- ☒ **Body Preparation and Handling:** Full PPE (Level 3)
- ☒ **Body Transportation:** Gloves, Full sleeve Gown, Mask, Head Cover, and practicing Hand Hygiene after each trip
- ☒ **Burial:** Gloves, Full sleeve Gown, Mask, Head Cover, and practicing Hand Hygiene
- ☒ **Funeral Prayer:** No PPE however minimum gathering, distancing, respiratory etiquettes.

5. Body Preparation at Hospital/ Place of Death:

- ☒ Must be handled by trained personnel (health care or mortuary staff, or the burial team)
- ☒ Strict adherence to standard precautions, including hand hygiene before and after interaction with the body, and the environment; and use appropriate PPE according to the level of interaction with the body;
- ☒ A minimum number of people should be involved in preparations.
- ☒ Identified family members may be allowed to observe preparation of body at a minimum distance of 1 m;
- ☒ Prepare the body for transfer including removal of clothes, all lines, catheters and other tubes;
- ☒ Ensure that any body fluids leaking from orifices are contained;
- ☒ No disinfection of the body is required however in case of excessive leakage from the orifices, 0.05% chlorine solution will be used.
- ☒ Perform dry ablution and Wrap the body in cloth.
- ☒ Body bags are not necessary, although they may be used for other reasons (e.g. excessive body fluid leakage);

6. Disinfection and Cleaning of Environment

- ☒ Clean environmental surfaces, where the body was prepared, first with soap and water, or a commercially prepared detergent solution;
- ☒ After cleaning, a disinfectant with a minimum concentration of 0.1% (1000 ppm) sodium hypochlorite (bleach), or 70% ethanol should be placed on a surface for at least 1 minute.
- ☒ The belongings of the deceased person do not need to be burned or otherwise disposed of. However, they should be handled with gloves and cleaned with a detergent followed by disinfection with a solution of at least 70% ethanol or 0.1% (1000 ppm) bleach.
- ☒ Clothing and other fabric belonging to the deceased should be machine washed with warm water at 60–90°C (140–194°F) and laundry detergent.
- ☒ If Machine washing is not possible; linens can be soaked in hot water and soap in a large drum using a stick to stir and being careful to avoid splashing.
- ☒ The drum should then be emptied, and the linens soaked in 0.05% chlorine for approximately 30 minutes. Finally, the laundry should be rinsed with clean water and the linens allowed drying fully in sunlight.

7. **Body Transportation:** Transportation in dedicated vehicle

8. **Funeral Prayers/Janaza:** Avoid large gathering, ensure social distancing, hand hygiene

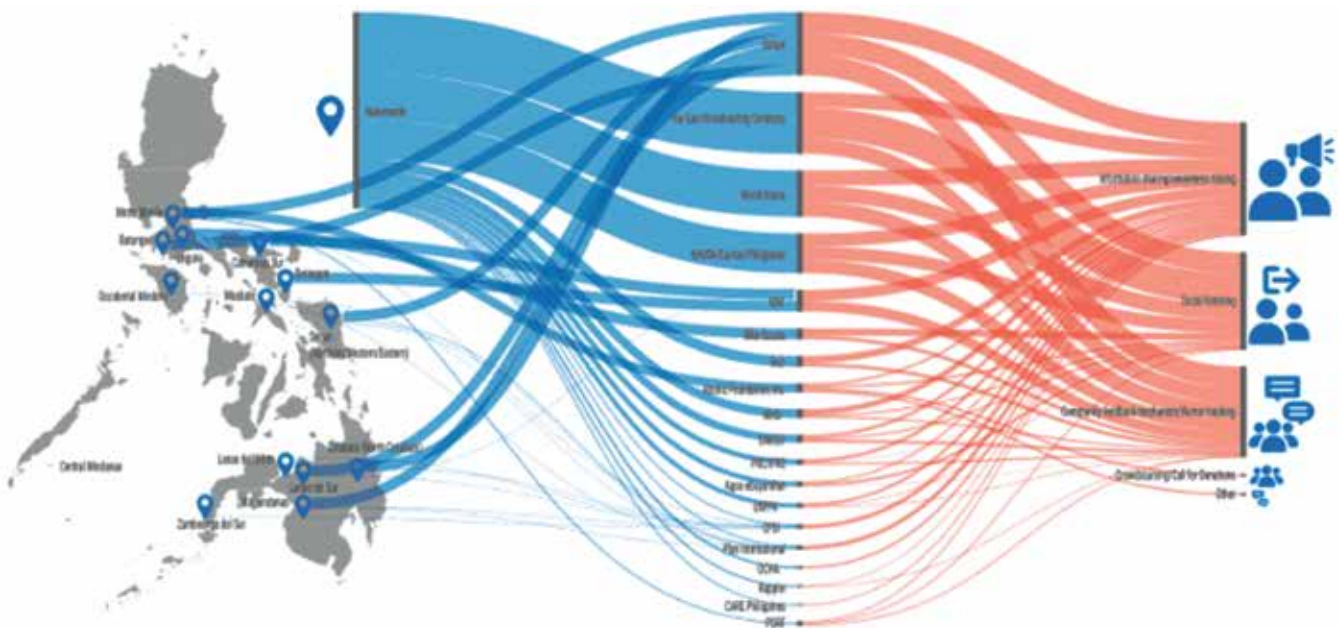
9. **Burial:** Laying body in grave by the team, family may participate in grave closing. Those tasked with placing the body in the grave, on the funeral pyre, etc., should wear gloves and wash hands with soap and water after removal of the gloves once the burial is complete.

10. Funeral Ceremonies:

- ☒ Burial should take place immediately however funeral ceremonies not involving the burial should be postponed, as much as possible, until the end of the epidemic.
- ☒ If a ceremony is held, the number of participants should be limited
- ☒ Participants should observe physical distancing at all times, plus respiratory etiquette and hand hygiene.

SECTION - F

Risk Communication & Community Engagement Strategy



Authors

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Risk Communication and Community Engagement Strategy

This section describes the essential steps that governments should ensure at the respective levels as part of addressing the novel Corona outbreak in country and the region. To respond to the COVID 19, Government of Punjab has developed a Standard Operating Procedures and Guidelines for COVID-19 of which risk communication and community engagement (RCCE) is a strong component.

Objectives and Principles

Following are the main objectives of COVID-19 RCCE strategy:

- ☒ Provide timely and accurate information to limit human-to-human transmission including reducing secondary infections among close contacts and health care workers
- ☒ Increase knowledge of families and communities about key behaviors related to hand washing and hygiene and health seeking behaviors
- ☒ Pro-actively engage with communities in order to collectively respond to Corona Virus in case of cases detection
- ☒ Communicate critical risk and event information to all communities and counter misinformation

Target Audience

- ☒ People who have recently visited the affected areas countries or stayed in contact with someone who have travelled abroad
- ☒ Health workers
- ☒ Teachers
- ☒ Students in schools, colleges and universities
- ☒ Out of School Children
- ☒ General public
- ☒ Media
- ☒ Influencers: parliamentarians, local elected officials, medical associations, religious leaders (only for promoting safe hygiene practices)
- ☒ Social media influencers on major forums
- ☒ Youth

Strategic Approaches

1. Behavior pattern analysis through use of anthropological and social data

- o Refer to national level anthropological and social data analysis to understand the risk perception, behaviors and practices of the public on COVID 19 for decision making on communication approaches to specific target population.
- o Monitoring rumors and myths at community level on perception of communities about the corona virus infection

2. Promotion of positive behaviors

Information dissemination to public through mass media and social media:

- ☒ Mass media campaigns through both state-owned and private television and radio stations will be used to reach public with focused messages particularly on corona virus infection prevention, early care seeking and stigma mitigation.
- ☒ The content for both mass media and social media will be designed and developed by the communication task team.
- ☒ Engagement with private companies for free media campaigns.
Broadcasting mass media messages on TV and radio channels.
- ☒ Social media campaigns will be designed, and national campaigns will be replicated to reach public with focused messages.
- ☒ Marketing of national level Chatbot to push the key messages and to engage with audience and to respond to their concerns and complaints.
- ☒ Resource material such as frequently asked questions, IEC material developed by health department and partners will be posted and shared.
- ☒ Sentiment analysis will be used to gauge public mood and opinion, which will then be used to modify the social media approach accordingly
- ☒ Robo calls by celebrities/prominent figures. SMS broadcast and caller tunes on promoting key preventive behaviors
- ☒ Interpersonal communication and Community Engagement to provide timely accurate information on risk associated with COVID 19, prevention and early health seeking behaviors to the families and community groups and to engage with and mobilize religious and community leaders, teachers, WASH clubs etc.
- ☒ Capacity of the first level workers such as SHNS, CDC Supervisors. Vaccinators, Dengue Staff, LHWS, Social Welfare Workers, WASH Community Resource Persons, teachers will be enhanced through various cadres of training in the provinces, districts and tehsils.

- ☒ These frontline workers will be equipped with key messages on corona virus infection, prevention of transmission and on timely care seeking and mobilized to reach families and communities with key messages.

The frontline workers will have community dialogues, one to one education to educate teachers, school children, WASH clubs, adolescent groups on hand washing and hygiene behaviors to prevent infection, social distancing etc.

- ☒ Communities will be informed about what actions are being taken by the government in order to reduce public panic
- ☒ Orientation will be provided to religious leaders, CSOs, youth groups, teachers, university students on basic information and how they can support preventing corona virus infection in their communities.
- ☒ Key community influencers will be engaged in communities to enhance acceptance for prevention behaviors and need for quarantine

3. Responding to resistance or misinformation:

- ☒ Activate the crisis communication team and adjust develop background information and modify prepared press statements and messages to be given to public and media
- ☒ Monitor the media regularly to get information on misreporting or rumors floating around on both mainstream and social media
- ☒ Set up a mechanism to address and respond to the rumors and misinformation immediately.

4. Advocacy and Capacity Building

- ☒ Provide training on basic information on COVID 19 to frontline workers: teachers, LHWs, Social Welfare Workers, CSO workers etc.
- ☒ Provide interpersonal communication training to frontline workers, including risk communication and psychosocial counselling.
- ☒ Build capacity of families and communities by equipping them with correct information on how to prevent and respond to corona virus infection.

Communication Response Elements

Figure 1 displays the basic elements of responding to a risk situation through communication. Below is a brief description of each of these elements:



Figure 1 Risk Communication Response Elements

1. **Educate Public:** Learning about the epidemiological realities of a new virus and the ensuing outbreak, in order to provide accurate information, and educating along the right directions, is crucial.
2. **Ensure Trust and Credibility:** Truthfulness, providing accurate information and keeping the community informed is advised. Experience from past emergencies tells that if there is some doubt in community's mind because of past incidents, they do not believe even the information about gravest of situations, which has resulted in loss of health and lives.
3. **Engage media:** The purpose of all forms of media is to provide information to the people. With the advent of social media, creating and breaking news is virtually within the finger clicks of everyone who owns an Internet enabled phone. In this environment, a routine of providing information to media and journalists on regular basis needs to be established so that wrong and incorrect information, or rumors do not spread.

4. **Monitor Situation:** The COVID-19 has burgeoned from a few to hundreds of thousands cases within a short span, and the number kept increasing. Similar is the situation of the number of countries involved. Pakistan is facing the same situation.

5. **Address Misconceptions:** Misconceptions are quite likely when a new virus appears on the epidemiological front and starts spreading at a fast pace. The COVID-19 situation is no different and strange misconceptions have been found among the people circulating through various sources. Such misconceptions should be neutralized through appropriate positive messaging and clear rebuttals, where required.

6. **Learn and Adapt:** Just as we do not know about a new virus and how its epidemic will behave, we also cannot be knowledgeable about the behavioral and social implications that it will entail. Developing all risk communication materials and strategies based on some evidence, monitoring their implementation and doing course correction by evaluating effects in desired attitudes and behaviors is important to learn, adapt and improve the interventions.

Flow of Information

In the wake of an evolving epidemic like COVID-19 that grows in terms of spread and numbers affected on daily basis, sharing of information between stakeholders involved, processing of this information and its ultimate delivery to diverse audience including policy, public and media is of vital importance. Figure 2 below provides an outline of how trickle-up and trickle-down of information occurs at the federal level and how it is supposed to be at the provincial and district level.

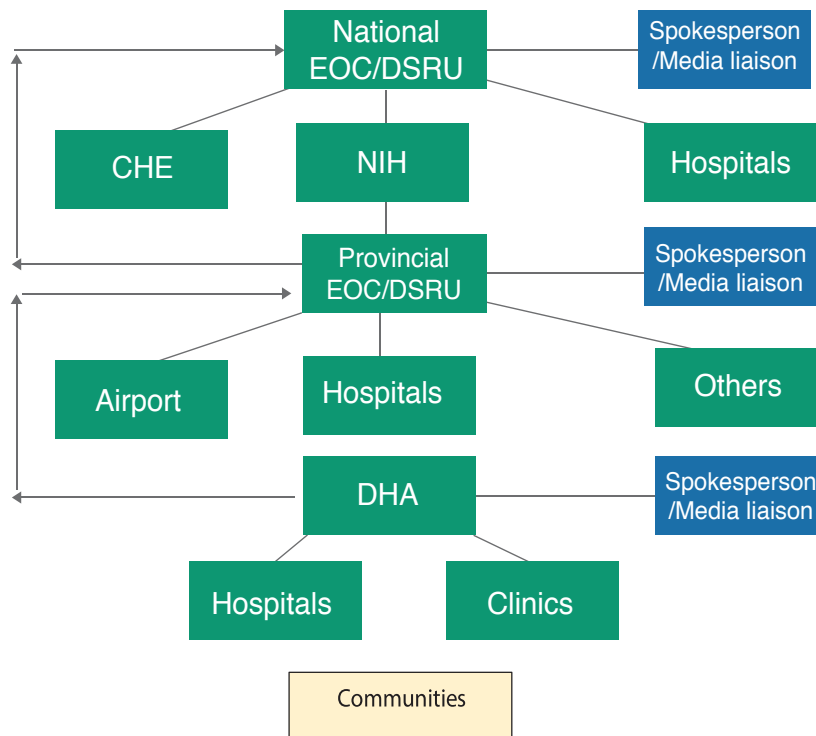


Figure 2 Information flow within the system

Provincial Level: The NEOC provide information to EOC Punjab, which is fed with information by relevant airports, hospitals and other elements like laboratories. EOC Punjab will refer to designated focal person for media to release information whenever required. Moreover, EOC Punjab also communicate their information upward with national EOC and release it to media, in consultation with national EOC to maintain uniformity of information.

District Level: A similar relationship at the district level where hospitals and clinics report suspected cases to the office of District Health Officer (DHO) and DHO shares all information with the EOC Punjab is also suggested. Whenever there is a situation of releasing information to media, the DHO office should consult provincial focal person for COVID-19 and interact with media accordingly.

Uniformity of Message

Maintaining uniformity of message for the public and oneness of information for media is crucial in emergency situations. This strategy recommends adopting notified guidelines for public education. Since according to these, human to human transmission occurred through droplets, contact and fomites during previous outbreaks due to other coronavirus (Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), suggesting that the transmission mode of the COVID-19 can be similar.

1. Wash hands regularly with soap and water for at least 20 seconds in order to prevent corona virus infection
2. Seek medical care early in case of fever, cough and breathing problem
3. Stay at home
4. Avoiding unnecessary contact with sick people, maintain distance while having essential contact.
5. At the airports and at the borders of neighboring countries (particularly Iran and Afghanistan for now)-message dissemination on signs and symptoms of the infection and the need for surveillance and quarantine of population returning to Pakistan from the affected areas.
6. At the airports and borders with neighboring countries-message dissemination on signs and symptoms of the infection and importance of surveillance and isolation of detected cases.
7. Specific messages to health workers as well as frontline workers in all sectors on personal protection measures Infected person and his/her family will be provided psychosocial counselling.
8. Stigma reduction in communities.

9. Explanation of measures to take when taking care of the sick person with emphasis on the need to treat patients and families with respect and to avoid stigma

Figure 3 below displays the various levels of audience, their influences, and approaches that will be used to implement the current RCCE strategy with all audience being provided with same technical information, according to their information needs

The right tools for different levels

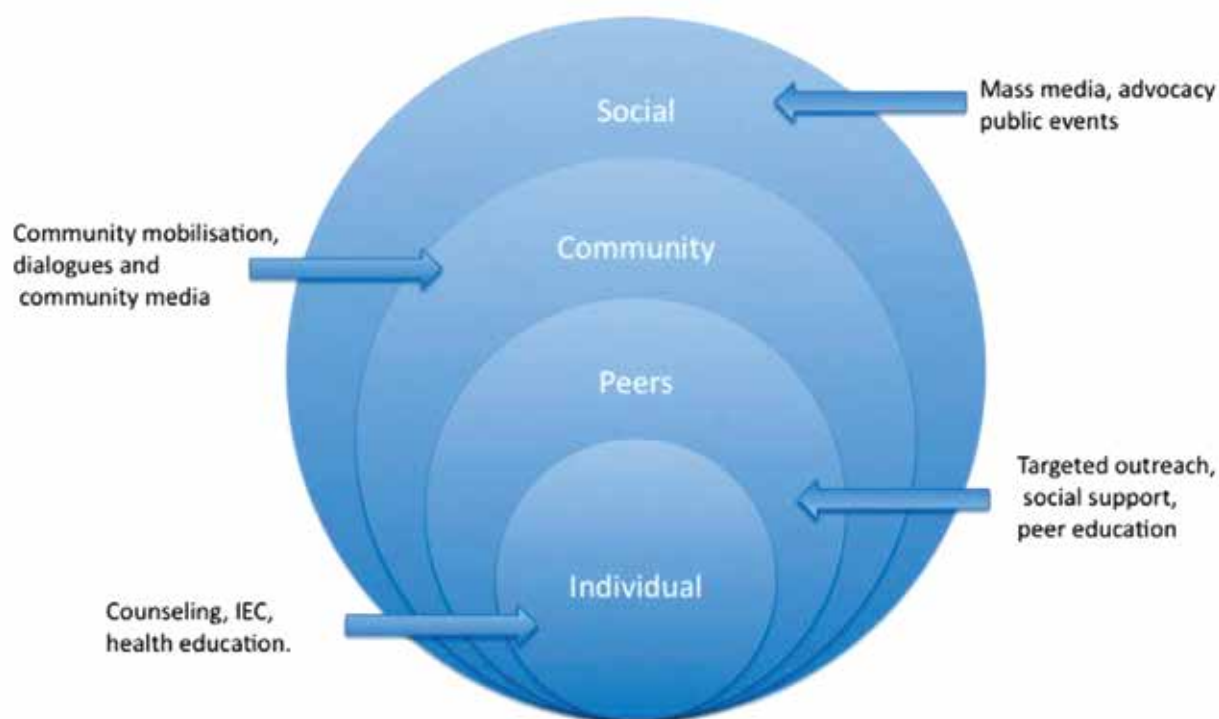


Figure 3 Providing uniform information to diverse audience according to their social ecology

Sensitizing Health Workers: Using the existing surveillance network and the model for AFP surveillance sensitization, ensure all healthcare workers in all priority active sites are sensitized.

Sensitizing the community: Use district level personnel including PEOs, DSOs, DHCSOs, COMNET personnel to sensitize community on the control and prevention measures for COVID-19 in line with the RCCE strategy ensuring adequate knowledge and protection of personnel involved.

Mental Health and Psychosocial Considerations for Covid-19

The high number of cases and uncertainty regarding COVID-19 outbreak is generating stress in the population. Following mental health considerations were developed by the WHO's Department of Mental Health and Substance Use as messages targeting different groups to support for mental and psychosocial well-being during COVID-19 outbreak.

General Population

1. COVID-19 has and is likely to affect people from many countries, in many geographical locations. Do not attach it to any ethnicity or nationality. Be empathetic to all those who are affected.
2. Do not refer to people with the disease as “COVID-19 cases”, “victims” “COVID-19 families” or the “diseased”. They are “people who have COVID-19”, “people who are being treated for COVID-19”, “people who are recovering from COVID-19” and after recovering from COVID-19 their life will go on normally. It is important to separate a person from having an identity defined by COVID-19, to reduce stigma.
3. Minimize watching, reading or listening to news that causes you to feel anxious or distressed; seek information only from trusted sources.
4. Protect yourself and be supportive to others. Assisting others in their time of need can benefit the person receiving support as well as the helper.
5. Find opportunities to amplify positive and hopeful stories and positive images of local people who have experienced COVID-19.
6. Honor caretakers and healthcare workers supporting people affected with COVID-19 in your community. Acknowledge the role they play to save lives and keep your loved ones safe.

Healthcare workers

1. It is normal to feel sad, stressed, overwhelmed or under pressure is a likely experience for you and many of your health worker colleagues. It is quite normal. Managing your mental health and psychosocial wellbeing during this time is as important as managing your physical health.
2. Try and use helpful coping strategies such as ensuring sufficient rest and respite during work or between shifts, eat sufficient and healthy food, engage in physical activity, and stay in contact with family and friends. Avoid using unhelpful coping strategies such as tobacco, alcohol or other drugs
3. Some healthcare workers may unfortunately experience avoidance by their family or community due to stigma or fear. If possible, staying connected with your loved ones including through digital methods is one way to maintain contact. Turn to your colleagues, your manager or other trusted persons for social support.
4. Use understandable ways to share messages with people with intellectual, cognitive and psychosocial disabilities.
5. Know how to provide support to, for people who are affected with COVID-19 and know how to link them with available resources. This is especially important for those who require mental health and psychosocial support.

Team Leaders or Managers in Health Facility

1. Keeping all staff protected from chronic stress and poor mental health.
2. Ensure good quality communication and accurate information updates are provided to all staff.
3. If you are a team leader or manager in a health facility, facilitate access to, and ensure staff are aware of where they can access mental health and psychosocial support services.
4. Orient responders, including nurses, ambulance drivers, volunteers, case identifiers, teachers and community leaders and workers in quarantine sites, on how to provide basic emotional and practical support to affected people using psychological first aid
5. Manage urgent mental health and neurological complaints (e.g. delirium, psychosis, severe anxiety or depression) within emergency or general health care facilities.
6. Ensure availability of essential, generic psychotropic medications at all levels of health care.

Care Providers for Children

1. Help children find positive ways to express feelings such as fear and sadness.
2. Keep children close to their parents and family, if considered safe for the child, and avoid separating children and their caregivers as much as possible. If a child needs to be separated from their primary caregiver, ensure that appropriate alternative care is provided regular contact with parents and caregivers is maintained via appropriate means.
3. Maintain familiar routines in daily life as much as possible, or create new routines, especially if children must stay at home.
4. During times of stress and crisis, it is common for children to seek more attachment and be more demanding on parents. Discuss COVID-19 with your children using honest and age-appropriate way.

Older adults, care providers and people with underlying health conditions

1. Older adults, especially in isolation and those with cognitive decline/dementia, may become more anxious, angry, stressed, agitated, and withdrawn during the outbreak/while in quarantine. Provide practical and emotional support through informal networks (families) and health professionals.
2. Share simple facts about what is going on and give clear information about how to reduce risk of infection in words older people with/without cognitive impairment can understand.
3. If you have an underlying health condition, make sure to have access to any medications that you are currently using. Activate your social contacts to provide you with assistance, if needed.
4. Be prepared and know in advance where and how to get practical help if needed, like calling a Taxi, having food delivered and requesting medical care. Make sure you have up to 2 weeks of all your regular medicines that you may require.

5. Learn simple daily physical exercises to perform at home, in quarantine or isolation to maintain mobility and reduce boredom.
6. Keep regular routines and schedules as much as possible or help create new ones in a new environment, including regular exercising, cleaning, daily chores, singing, painting or other activities.

People in Isolation

1. Stay connected and maintain your social networks. Even when isolated, try as much as possible to keep your personal daily routines or create new routines. If health authorities have recommended limiting your physical social contact to contain the outbreak, you can stay connected via e-mail, social media, video conference and telephone.
2. During times of stress, pay attention to your own needs and feelings. Engage in healthy activities that you enjoy and find relaxing. Exercise regularly, keep regular sleep routines and eat healthy food. Keep things in perspective. Public health agencies and experts in all countries are working on the outbreak to ensure the availability of the best care to those affected.
3. A near-constant stream of news reports about an outbreak can cause anyone to feel anxious or distressed. Seek information updates and practical guidance at specific times during the day from health professionals and WHO website and avoid listening to or following rumors that make you feel uncomfortable.