

General practitioner's (GP) home management guidelines for COVID-19 patients: Guidelines

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Abstract

Carefully developed guidelines for clinical practice serve as an important tool for desirable changes in health care of a country. They act as an important source of information for physicians as well as policy makers and educational institutions thereby improving the quality of care of patients. The outbreak of Novel Coronavirus Disease (COVID-19) in 2019 has placed a huge burden on health care system globally. The first line health care provider bears the brunt of this disease with limited and varying sources of information as most of the patients present to them. Varied presentation of disease along with limited hospital facilities for admission is a huge challenge for appropriate management and referral of these patients. These guidelines, prepared after reviewing the interim guidelines in literature, will serve as a source of guidance for GPs to manage mild cases at home and refer those with moderate and severe disease to tertiary care hospitals.

Keywords: COVID-19, General Practitioner, Guideline, Home visit

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Introduction

The outbreak of COVID-19 caused by SARS-CoV-2 virus has progressed to the status of a global pandemic, with so many countries adversely affected across all seven continents. The number of cases has approached over 93 million with over 2 million deaths (January 2021).¹ This has created a huge burden on health care system. Most of the patients presenting with COVID 19 have mild symptoms which can be managed at home while those with severe or critical disease should be referred to a tertiary care hospital for further management.²

General Practitioners (GPs) act as the frontline force in managing common problems in the community. The amount of rapidly changing information circulating on social media related to COVID 19 is overwhelming and is a cause of confusion and anxiety in primary health care

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providers.³ A number of interim guidelines on surveillance and management of this infection^{2,4,5} have been published by several public health stakeholders. The following evidence based rapid guidelines have been specifically prepared for general practitioners of Pakistan on home management of confirmed COVID-19 patients (Table 1) as a quick reference guide.

Clinical Features: COVID-19 presents with variable symptoms ranging from non- severe to critical disease. These symptoms can appear anytime within 2-14 days after exposure to the virus.

Symptoms⁴ may include

- Fever with or without chills (83–99%)
- Cough (59–82%)
- Anorexia (40–84%)
- Fatigue (44–70%)
- Loss of smell or taste (65%)
- Difficulty in breathing (31–40%)
- Myalgias (11–35%)
- Headache <10%
- Sore throat <10%
- Runny nose/Congestion <10%
- Nausea/Vomiting <10%
- Diarrhoea <10%

Atypical presentations⁶: Can occur in immune-compromised or older patients

- Fall
- Delirium/confusion
- Syncope
- Functional decline
- Reduced mobility
- Bacterial co-infections
- Absence of fever

Testing criteria: All patients who present with fever, respiratory symptoms alone or in combination with any of specified symptoms should get tested for COVID-19. The

Table 1: Case definitions of COVID-19.1. Confirmed case^a:

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

2. Suspected case^b:

- A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g. cough, shortness of breath; AND/or requiring hospitalization) AND in the absence of an alternative diagnosis that fully explains the clinical presentation. OR
- 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;

(1) ^a: Routine confirmation is based on detection of COVID-19 virus nucleic acid (RNA) by real time PCR assay (Serology IgM/IgG tests and Rapid diagnostic tests are NOT recommended as primary means for diagnosis)

(2) ^b: Patients with suspected COVID-19 should have a viral nasopharyngeal swab (RT-PCR) sent as soon as possible.

types of tests currently recommended and available in Pakistan are summarized in Table 2.

Home Management of COVID: The current COVID-19 situation is posing challenges to patients, their families as well as the doctors alike with high risk of infection transmission. In addition informed patients are reluctant to visit hospitals at this time due to fear of acquiring the infection. GPs being on the frontline are faced with the greatest threat of acquiring infection thus they are required to follow standard precautions for every patient they are taking care of at home as well as in clinics. Keeping this in mind, the following measures and recommendations have been proposed for GPs on infection control with particular emphasis on home management.

Standard Precautions for GPs:

- Rigorous hand washing and hygiene
- Appropriate use of personal protective equipment (PPE)

- Needle-stick injuries prevention
- Safe management and disposal of waste
- Equipment disinfection and cleaning
- Environment cleaning
- Maintaining safe distance from patients and examination only if necessary with full PPE

Infection control measures to be followed by GPs during home visits:

- Use of PPE is mandatory before entering the house. A new gown, gloves and surgical cap should be used as per donning procedure for each home visit if visiting multiple houses to prevent infections.
- Avoid unnecessary touching of surfaces or eating/drinking during consultation at patient's house.
- After leaving the patient's house and before entering your car/transport, PPE should be removed as per doffing procedure and hand hygiene should be performed.

Table 2: Types of tests (adapted from COVID-19 NIH guidelines of Pakistan)²

Test	Sample	Test site	Period of positivity	Purpose	Whom to test	Advantages	Disadvantages
PCR	Nasopharyngeal, nasal, oropharyngeal	Specialized laboratory	2 days before symptoms, 2 to 8 weeks after symptoms	Clinical diagnosis or Screening asymptomatic individuals (e.g., pre-op, contact tracing)	Individuals suspected of COVID-19 or contact tracing or Asymptomatic individuals at risk of transmitting	Highly sensitive. Very low false-positive rate	Expensive. Remains positive after recovery
Antibody	Blood	Laboratory or point of care	7 to 14 days after symptoms. Duration of positivity unknown	Clinical diagnosis, surveillance	For diagnosis late in the illness. Seroprevalence studies.	Cheap and accessible	Variable sensitivity and specificity. Late positivity. Does not inform about immunity or recovery
Antigen	Nasal or nasopharyngeal	Point of care	2 days before symptoms till 5 days after symptoms	Very early diagnosis	Rapid diagnosis in early disease	Rapid and can be deployed in the field	Negative needs to be confirmed by PCR. Low sensitivity after the initial few days

Table-3: Approach to diagnosis with general management of a confirmed COVID-19 patient based on symptom severity.

	Asymptomatic	Non-Severe	Severe	Critical
Symptoms	● Positive RT-PCR test for SARS-CoV-2 ● No clinical symptoms	● Positive RT-PCR test for SARS-CoV-2 ● Upper respiratory symptoms (eg, Fever, Sore throat, cough, headache malaise and muscle pain) ● O₂ saturation $\geq 95\%$ or Respiratory rate < 25 breaths/min	● Positive RT-PCR test for SARS-CoV-2 ● clinical features along with dyspnoea and Oxygen saturation (SpO_2) $\leq 94\%$² on room air or ● Respiratory rate > 25 breaths/min	● Positive RT-PCR test for SARS-CoV-2 ● clinical features, plus any manifestations that suggest disease progression like ● Severe Hypoxia not maintaining O₂ > 90 on oxygen more than 5 lits with nasal cannula/face mask ● Drowsiness, confusion, delirium, coma, convulsions, stroke ● Severe chest pain, irregular pulse, blue lips ● Dehydration
Investigations	None needed No need to repeat PCR unless immunocompromised, living in an institutionalized setting or health care worker dealing with immunocompromised patients	No blood tests necessary unless a concern of disease progression (symptoms persisting > 10 days)	All patients must be assessed for the Cytokine Release Syndrome (CRS) with following investigations Blood: CBC, Ferritin, C-reactive protein, Lactate dehydrogenase Additional investigations : RBS, LFT, BUN, Creatinine and electrolytes, D-Dimer Blood Culture, ECG Optional investigations: Pro-calcitonin, Troponin, Echo, Pro-BNP, IL-6, CT scan chest	Urgent referral to emergency for admission to high dependency unit or ICU requiring ventilatory support²
Management	Standard precautions and infection prevention No specific treatment Self isolation for 10 days from the test date	Standard precautions and infection prevention Symptomatic management at home ● Self isolation for 10 days ● Self-monitoring of fever and other symptoms (q 8 hourly) Can end isolation² if: ● At least 10 days have passed since symptoms first appeared ● Fever has been absent for at least 72 hours i.e. 3 full days of no fever without use of fever-reducing medicine plus ● Other symptoms have resolved/decreased in intensity eg. cough or shortness of breath	In addition to standard precautions and infection prevention Refer to hospital for admission While waiting for bed to be arranged ● Monitor oxygen saturation hourly ● Monitor vitals hourly ● O₂ via cannula/face mask if available ● Prone positioning ● Consider empiric antibiotics if ● Secondary bacterial infection ● High risk of complications (high risk individuals c) (The strongest risk factors for hospital admission are older age, heart failure, male sex, chronic kidney disease, and increased body mass index)⁶	

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Table-3: (continued from previous page)

	Asymptomatic	Non-Severe	Severe	Critical
		<i>High Risk individuals to be monitored closely and investigated as necessary or considered for observation in hospital² with the understanding that patient can become severe or critical in the second week of symptoms</i>		

c. High risk individuals: Age > 60 years, BMI >40, Smoker, DM, HTN, heart/lung/kidney/liver disease, immuno compromised, Pregnant women, Cancer, use of immunosuppressive drugs, Organ or Bone marrow transplant, Vasculitis

Table 4: Specific Symptom Based Management of Mild Disease.

Fever & bodyaches: General measures: ● Advise regular temperature charting. Fever may persist for over a week and can be biphasic. Medications: ● Advise to take Tab Paracetamol if fever >38°C degrees or having bodyaches. NSAIDs can be given. Runny nose: General measures: ● Advise to use a tissue to cover mouth and nose while coughing and sneezing and discard appropriately after use Medication: Advise to use Antihistamines if required	Breathlessness: General measures: ● Advise to check oxygen saturation with pulse oximeter q4-6 hourly. Also check after 5 min walk. (normal 95%) ● Advise patients who are self-isolating alone to open a window if facing outside the house, to improve air circulation ● Advise to encourage positioning and breathing techniques ● Sitting upright, leaning forward with arms bracing a chair and upper body supported ● Relaxing and dropping shoulders ● Pursed breathing (inhale through nose for several seconds with mouth closed and then exhale slowly through pursed lips for 4-6 seconds) Medications: ● Advise to transfer patient to nearby emergency in case of oxygen saturation dropping below <94d ● While waiting for ambulance if oxygen is available consider a trial of oxygen therapy	Cough: General measures: ● Advise honey/ lozenges ● Advise to avoid lying on back as it makes coughing in effective. Preferably lie in prone position or sideways Medications: ● For dry cough: Cough syrup containing Codeine compound every 6 hours ● For productive cough: cough syrup containing dextromethorphan compound
		Warning: Keep an eye on elderly, frail, those with co morbidities (diabetes, asthma etc) or reduced ability to cough and clear secretions as they are more likely to develop pneumonia Steam inhalation and nebulization are aerosol generating procedures and facilitate the spread of virus so caution must be exercised. In patients with COPD and bronchiectasis avoid using cough suppressants as it can lead to sputum retention

^dIf oxygen saturation is between 92%- 95% repeat readings hourly. If does not improve or falls lower, call Aman Ambulance 1021 who can guide about bed availability and help transfer the patient if needed. Corona contact helpline (021 - 99206565 021 - 99204452) about bed availability and help transfer the patient if needed. Corona contact helpline (021 - 99206565 021 - 99204452)

Table 5: Evidence of therapeutic and adjunctive COVID-19 medications.

NB: There are no drugs or other therapeutics presently approved by the FDA to prevent or treat COVID-19 for outpatient settings				
No.	Name of Drug	Class of drug	Evidence	Recommendation
1.	Remdesivir	Broad-spectrum Antiviral	Due to antiviral properties has a role in shortening time to recovery in hospitalized patients No mortality benefits ²	For treatment: Recommended only for use in patients with severe disease not for critical disease² No recommendation for those not requiring supplemental oxygen⁷

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Table-5: (Continued from previous page)

No.	Name of Drug	Class of drug	Evidence	Recommendation
2.	Hydroxy-chloroquine and Chloroquine	Antimalarial	Data shows no clinical benefit in hospitalized patients⁸ No reductions in 28-day mortality, associated with an increased length of hospital stay and increased risk of progressing to invasive mechanical ventilation or death.⁸	For prophylaxis: Not recommended for prevention of COVID 19 infection^{7,8} For treatment: Not recommended for treatment of COVID 19 infection^{7,8}
3.	Azithromycin	Antibiotic (Macrolide)	Data shows no clinical benefit in hospitalized patients⁸ No clinical benefit with use in patients hospitalized with COVID-19. Use should be restricted to patients where there is a clear antimicrobial indication⁷ QT prolongation seen when used in combination in high risk patients⁸	For treatment: Not recommended ⁷
4.	Corticosteroids	Anti- inflammatory drug	Steroids have demonstrated a mortality reduction of 8.7% and 6.7% in severe and critical patients with COVID-19^{2,8} Choice of drug at discretion of clinician² (Dexamethasone is cheaper, easier to use in outpatient setting, and has more potent anti-inflammatory activity)	For treatment: Steroid use recommended to patients with severe or critical disease who need supplemental O₂.² Use in non-severe patients may lead to an increase in mortality and should be avoided⁷
5.	Zinc	Essential Mineral	Possesses direct and indirect antiviral properties with suppression of inflammatory reaction⁹ Insufficient data to recommend either for or against the use of zinc for the treatment of COVID-19⁷	For treatment: Not recommended for use above the recommended dietary allowance for the prevention of COVID-19 except in a clinical trial ⁷
6.	Ascorbic acid	Multivitamin	Has potent antioxidant and immunomodulatory properties Insufficient data to recommend either for or against the use of Vitamin C for the treatment of COVID-19⁷	For prophylaxis: No recommendations available yet Potential role being evaluated due to its antioxidant with immune-modulatory properties ⁹
7.	Vitamin D	Multivitamin	Has an immunomodulation role, increases innate immunity by secretion of antiviral peptides which improves mucosal defenses¹⁰ Some recent studies show an association between vitamin D and Covid-19 severity and mortality¹¹	For treatment: Insufficient data to recommend either for or against the use of vitamin D for the prevention or treatment of COVID-19⁷ Potential role being evaluated as an immune-modulatory effect¹².

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Table 5: (Continued from previous page)

No.	Name of Drug	Class of drug	Evidence	Recommendation
8.	Ascard/ oral anticoagulant agents /low molecular weight heparin	Antithrombotic agent	There is limited data to recommend anticoagulation, however a high index of suspicion for venous thromboembolism should be kept.as SARSCo-V2 can cause hypercoagulable state.	For thromboembolic prophylaxis : For outpatient setting: Not recommended ⁷ For inpatients setting: Consider as per standard of care ⁷ For treatment: Recommended in those hospitalized with a thromboembolic event ⁷
9.	Ivermectin	Antiparasitic agent	Inhibits viral replication Inhibits the replication of SARS-CoV-2 in vitro ¹³	For outpatient setting: Not recommended for use in treatment of COVID-19 except in clinical trial ⁷ In vitro studies show potential role as an antiviral but further trials needed ¹³

- Used PPE should be sealed in a plastic bag and disposed off or washed for reuse where applicable.
- All the used instruments should be disinfected using a disinfectant containing 70% Alcohol
- On reaching home, shower is advised before meeting and greeting any household members

Table 3 provides an approach to the diagnosis and management of COVID-19 patients. The severity criteria have been adopted from already published guidelines by World Health Organization, Center of Disease Control and recently updated guidelines of National Institute of Health (NIH) Pakistan.^{2,4-6}

Symptom based management of mild disease: Our guidelines focus on management of non-severe clinical presentation of COVID. Most of the patients recover and can be managed at home, however the risk of hospitalization should not be ignored, therefore frequent and efficient monitoring is essential. The decision to shift the patient to an inpatient setup should be made on a case to case basis. This decision depends not only on the clinical presentation but additionally on potential risk factors for severe disease, the ability of the patient to self-isolate at home or any requirement for supportive care. Patients at high risk of complication for severe illness should be monitored closely because of the risk of progression to severe illness, specially seen in the second week after symptom onset. Strict watchfulness is mandatory at home as some may develop severe disease even earlier.

Enhancing the body's immunity plays an important role in maintaining optimum health. Following general measures should be ensured at home and suggested to the patients.

General measures: Advice patients to

- Stay at home in a well-ventilated room
- Eat healthy meals and keep well hydrated
- Get plenty of rest and sleep
- Get involved in physical activity as tolerated
- Encourage mental relaxation techniques to help cope with anxiety and panic
- Keep a pulse oximeter at home if possible and stay vigilant in case the oxygen saturation drops and stays below 95% as this may require hospital admission

Table 4 highlights a brief management plan for the commonly reported symptoms at home. To date, there is no specifically approved treatment for COVID-19 i.e. no cure yet, although various treatments are currently under investigations and trials.

Table 5 shows the evidence based recommendation for the various therapeutic and adjunctive treatments being investigated and tested.

Home visit advice by GPs for mild category COVID-19 patients

Advice given by GPs for self-isolating COVID-19 patients at home

- Patient should be quarantined in a well-ventilated single room with limited movement. Ideally, they should have access to a separate toilet else it should be disinfected after every use.
- Patient should be advised to wear a surgical mask to prevent contamination especially during care giver presence in the room or when leaving room for any reason.
- Separate eating utensils should be advised for patient; and after use these should be washed with soap and water by the patient him/herself if stable otherwise by

care giver with all precautions.

- Surfaces which are frequently touched like tables, door handles and any other bedroom furniture should be disinfected daily using any household disinfectant that contains 0.1% sodium hypochlorite (equivalent to 1000 ppm).
- All clothes, bed linen, towels under patient use, should be either washed with laundry soap and water or it can be machine washed at 60–90 °C (140–194 °F) using household detergent
- Patients should limit contact with others through social distancing

Advice given by GPs for caregivers of COVID-19 patients at home

- Household members should be advised to stay in a separate room from the patient. If this is not possible, then a minimum distance of at least 2 meter (6 feet) should be maintained. Ideally patient should be advised to use a separate washroom. If not possible then disinfect toilet after every use.
- The number of caregivers should be limited. Ideally, assign one person who is in good health and has no medical problems.
- Caregivers should at least wear a surgical mask and gloves when with the patient. Mask handling should be minimized during use. If it gets wet from secretions, replace immediately with a new and dry mask using appropriate technique (Avoid touching the front of mask). Mask and gloves should be discarded in a closed container immediately after use and hand hygiene carried out.
- Avoid coming in contact with patient's skin, clothes or any other contaminated materials. Perform hand hygiene after handling all items.
- Visitors should not be allowed until patient's complete recovery and all signs or symptoms of COVID-19 have resolved.
- Care giver should perform hand hygiene after any contact with patients or their environment or use an alcohol-based hand rub if hands cannot be washed.
- Those who cannot tolerate a mask should be advised to use rigorous respiratory hygiene; They should cover their mouth and nose with a disposable paper tissue on coughing or sneezing which should be discarded after use.
- Gloves, masks, and other waste should be placed into a waste bin with a lid before disposing off.

- Avoid other types of exposure to all items from immediate environment of patient (like toothbrushes, dishes and utensils, towels or bed linen etc.).

Conclusion

These guidelines will assist as a resource for GPs to differentiate the different categories of COVID-19 according to severity. Additionally, this will serve as a guide for appropriate home management of non-severe disease, appropriately identifying and referring those with severe or critical disease thereby easing the burden on tertiary care hospital.

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