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# Resources for Primary Care Providers to Meet Patients Needs During the COVID-19 Epidemic\*

Nachiket Mor, PhD<sup>1</sup>

<sup>1</sup>The Banyan Academy of Leadership in Mental Health, Thiruvидanthai, Tamil Nadu, India

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## **Abstract**

This document is intended to provide a summary of the resources available to help primary care providers (PCPs) as they seek to address the needs of their patients during the current COVID-19 epidemic.

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\*Disclaimer: This is not a peer-reviewed or scientifically-vetted document, nor has it been approved by any regulatory or supervisory authority. Please exercise great care and independent judgement while using these materials. The most updated guidance on most of these matters is available on the website of the Ministry of Health and Family Welfare ([www.mohfw.gov.in](http://www.mohfw.gov.in)) and, particularly for the general public, on the MyGov website of the Government of India ([www.mygov.in/covid-19](http://www.mygov.in/covid-19)).

# 1 Introduction

This document is intended to provide a summary of the resources available to help primary care providers (PCPs) as they seek to address the needs of their patients during the current COVID-19 epidemic.

## 2 Standard Operating Procedure in Primary Care

- **Triage:** An initial risk assessment for COVID-19 can be done using this tool: <https://coronavirus.heallify.com/> either over the phone or in-person, and low-risk individuals can be advised to remain at home and follow Home Quarantine guidelines of the Ministry of Health & Family Welfare (MoHFW, 2020b). If they “do develop symptoms, like a fever, cough, or shortness of breath, that is when [they] would need to [be advised to] self-isolate [even] at home, away from other household members, [and to] contact [their] medical provider but stay home as long as those symptoms are manageable [unless they] have severe shortness of breath or if symptoms suddenly get worse, that is when [they] should seek out [in-person] medical care” (Watson, 2020)<sup>1</sup>. For those patients that absolutely need to be seen in-person, an emerging best practice adapted from China (Mitchell, 2020; Fitzgerald, 2020), is to stream them into three categories: (a) those with fever (and those who are deemed to be high risk) do not go to their regular primary care provider but to a specialised *Fever Clinic* which is physically separated from the rest of facility and may even be a distance away; (b) those with cough, cold, runny nose, sore throat, anything that could be a viral Upper Respiratory Tract Infection (URI) go to the main facility, but are seen by a provider who only sees such cases and are kept physically separated from the rest of the patients; and (c) all the other cases are seen by their regular providers. This minimizes the risk of transmission but also ensures that the regular patients, particularly those with other infectious (like Tuberculosis) and chronic (like Cardio Vascular Disease) conditions continue to receive the care and medicines that they need in a timely manner<sup>2</sup>.
- **Safety Precautions in the Clinic:** “An unwell patient with relevant symptoms should be identified when they book in at reception and immediately placed in a room away from other patients and staff. If COVID-19 is considered possible when a consultation is already in progress, withdraw from the room, close the door and wash your hands thoroughly with soap and water. The patient should remain in

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<sup>1</sup>Doctors from Italy have argued that even for those people that need medical attention the best place to treat them may be at home in order to prevent further transmission of this highly infectious virus to other patients visiting hospitals (Begley, 2020). “Western health care systems have been built around the concept of patient-centered care, but an epidemic requires a change of perspective toward a concept of community-centered care. What we are painfully learning is that we need experts in public health and epidemics, yet this has not been the focus of decision makers at the national, regional, and hospital levels. We lack expertise on epidemic conditions, guiding us to adopt special measures to reduce epidemiologically negative behaviors. For example, we are learning that hospitals might be the main COVID-19 carriers, as they are rapidly populated by infected patients, facilitating transmission to uninfected patients. Patients are transported by our regional system, which also contributes to spreading the disease as its ambulances and personnel rapidly become vectors. Health workers are asymptomatic carriers or sick without surveillance; some might die, including young people, which increases the stress of those on the front line. This disaster could be averted only by massive deployment of outreach services. Pandemic solutions are required for the entire population, not only for hospitals.” (Nacoti et al., 2020).

<sup>2</sup>Dr Atul Gawande, in his piece in the New Yorker (Gawande, 2020) has this guidance to offer based on his review of official documents, and his discussions with health-care leaders Singapore and Hong Kong on the practices that those two countries have followed to keep their health-workers safe: (a) all health-care workers are expected to wear regular surgical masks for all patient interactions, to use gloves and proper hand hygiene, and to disinfect all surfaces in between patient consults; (b) patients with suspicious symptoms (a low-grade fever coupled with a cough, respiratory complaints, fatigue, or muscle aches) or exposures (travel to places with viral spread or contact with someone who tested positive) are separated from the rest of the patient population, and treated—wherever possible—in separate respiratory wards and clinics, in separate locations, with separate teams; (c) social distancing is practiced within clinics and hospitals: waiting-room chairs are placed six feet apart; direct interactions among staff members are conducted at a distance; doctors and patients stay six feet apart except during examinations; (d) the use of N95 masks, face-protectors, goggles, and gowns are reserved for procedures where respiratory secretions can be aerosolized (for example, intubating a patient for anesthesia) and for known or suspected cases of covid-19; (e) when someone unexpectedly tests positive — say, a hospital co-worker or a patient in a primary-care office or an emergency room, in Hong Kong and Singapore, they don’t shut the place down or put everyone under home quarantine, they do their best to trace every contact and then quarantine only those who had close contact with the infected person (in Hong Kong, “close contact” means fifteen minutes at a distance of less than six feet and without the use of a surgical mask; in Singapore, thirty minutes and if the exposure is shorter than the prescribed limit but within six feet for more than two minutes, workers can stay on the job if they wear a surgical mask and have twice-daily temperature checks) – people who have had brief, incidental contact are just asked to monitor themselves for symptoms.

the room with the door closed. Belongings and waste should remain in the room. The patient and any accompanying family should remain in the room with the door closed while they are remotely assessed by a clinician in the practice. If following remote consultation the patient needs face-to-face assessment, wear personal protective equipment (PPE) in line with standard infection control precautions.” (PHE, 2020). It is important to note that while there are a number of ways in which COVID-19 can transmit, its most important means of transmission is via droplets from the infected person, and the use of masks and gloves, which are changed often and cleaned with regular detergents; frequent hand-washing with soap and water, and cleaning of all surfaces in the clinic with regular cleaning materials after each patient visit; changing and cleaning of clothes and footwear immediately upon reaching home; and, maintaining social distancing from other family members, would constitute important and mandatory precautions even in resource constrained settings, before considering any other steps (Rubin et al., 2020).

- **Notification & Home Quarantine:** Ministry of Health & Family Welfare, Government of India, has issued detailed guidelines on Notification of Cases (MoHFW, 2020c), and on Home Quarantine of contacts (MoHFW, 2020b). In accordance with the guidelines, all suspect cases of novel Coronavirus Disease (COVID19) will need to be rapidly isolated in designated health facilities (MoHFW, 2020c) and all contacts of such cases will need to be quarantined at home (MoHFW, 2020b).

### 3 Personal Protective Equipment (PPE) for PCPs

The National Centre for Disease Control (NCDC) of the Ministry of Health & Family Welfare, Government of India, has recently issued detailed guidelines for infection prevention and control in healthcare facilities (NCDC, 2020) which, while focused more on hospital settings than on primary care, are quite comprehensive. WHO has issued detailed guidance on the rational use of PPE for COVID-19 (WHO, 2020d) which includes the use of: (a) medical mask; (b) gown; (c) gloves; and (d) eye protection (goggles or face shield) for healthcare workers providing direct care to COVID-19 patients (WHO, 2020d, table 1, p 3). While rubber gloves and, where necessary, hazmat suits, will need to be manufactured in factory settings and procured from outside<sup>3</sup>, it is indeed possible to manufacture gowns, face masks, shields, and hand-sanitizers, in less formal settings<sup>4</sup>.

- **Isolation Gowns:** In situation of severely limited or no available isolation gowns, US-CDC guidance is that, among other things, the following pieces of clothing, including, disposable laboratory coats, reusable (washable) patient gowns, reusable (washable) laboratory coats, and disposable aprons can be considered as a last resort for care of COVID-19 patients as single use (CDC, 2020b). “However, none of these options can be considered PPE, since their capability to protect HCP is unknown” (CDC, 2020b). Preferable features include long sleeves and closures (snaps, buttons) that can be fastened and secured (CDC, 2020b)<sup>5</sup>.
- **Face Masks & Shields:** “Evidence that face masks can provide effective protection against respiratory infections in the community is scarce [...] however, face masks are widely used by medical workers as part of droplet precautions when caring for patients with respiratory infections” (Feng et al., 2020). Since it is not always possible for PCPs to have an adequate quantity of masks on hand US-CDC has issued guidance that: “In settings where facemasks are not available, HCP (Health Care Providers) might use homemade masks (e.g., bandana, scarf) for care of patients with COVID-19 as a last resort. However, homemade masks are not considered PPE, since their capability to protect HCP is unknown. Caution should be exercised when considering this option. Homemade masks should ideally

<sup>3</sup>Currently readily available from wholesalers such as India Mart (<https://dir.indiamart.com/impcat/chemical-suit.html>). India Mart has substantially expanded its list of registered suppliers for masks, hand sanitizers, and other necessary COVID-19-related materials.

<sup>4</sup>Ariadne Labs also has some very useful guidance on how PPEs may be conserved using a “Restrict, Reduce, Re-use” approach that would be well worth considering (Benjamin et al., 2020).

<sup>5</sup>With some training and guidance this kind of manufacturing effort can be taken-up by self-help-groups (SHGs) very easily. May need donor support to get this jump-started and support from organized retailers such as Flipkart, Amazon, and Indiamart for distribution.

Table 1: Current estimates of the severity of cases (Ferguson et al., 2020)

Age-group (years)	% symptomatic cases requiring hospitalisation	% hospitalised cases requiring critical care	Infection Fatality Ratio
0 to 9	0.1%	5.0%	0.002%
10 to 19	0.3%	5.0%	0.006%
20 to 29	1.2%	5.0%	0.03%
30 to 39	3.2%	5.0%	0.08%
40 to 49	4.9%	6.3%	0.15%
50 to 59	10.2%	12.2%	0.60%
60 to 69	16.6%	27.4%	2.2%
70 to 79	24.3%	43.2%	5.1%
80+	27.3%	70.9%	9.3%

be used in combination with a face shield that covers the entire front (that extends to the chin or below) and sides of the face” (CDC, 2020a). Following this guidance some health systems have encouraged and provided detailed guidance to local communities to manufacture face-masks and face-shields (Dartmouth-Hitchcock, 2020; Galloway, 2020; Henry Ford, 2020)<sup>6</sup>.

- **Hand Sanitizers:** “According to the available evidence on efficacy, tolerability and costeffectiveness, WHO recommends using an alcohol-based handrub for routine hand antisepsis in most clinical situations. Health-care facilities currently using commercially-available handrubs, liquid soaps and skin care products sold in disposable containers should continue this practice, provided that the handrubs meet recognised standards for microbicidal efficacy (ASTM or EN standards) and are well accepted/tolerated by the health-care workers. It is obvious that these products should be regarded as acceptable, even if their contents differ from those of WHO-recommended formulations described within this document. WHO recommends the local production [...] as an alternative when suitable commercial products are either unavailable or too costly. To help countries and health-care facilities to achieve system change and adopt alcohol-based handrubs, WHO has identified formulations for their local preparation” (WHO, 2010)<sup>7</sup>.

## 4 Emergency Clinical Management of COVID-19 Patients by PCPs

The data on the infection rates and associated mortality are changing constantly and new information is constantly being made available and processed. However, the most recent analysis from a high quality source (the Imperial College COVID-19 Response Team), is given in table 1, and may be useful to be aware of.

- **Oxygen Therapy:** “Give supplemental oxygen therapy<sup>8</sup> immediately to patients with SARI (Severe Acute Respiratory Infections<sup>9</sup>) and respiratory distress, hypoxaemia, or shock: Initiate oxygen therapy at 5 L/min and titrate flow rates to reach target  $\text{SpO}_2 \geq 90\%$  in non-pregnant adults and  $\text{SpO}_2 \geq 92\text{-}95\%$  in pregnant patients. Children with emergency signs (obstructed or absent breathing, severe

<sup>6</sup>With some training and guidance this kind of manufacturing effort can be taken-up by self-help-groups (SHGs) very easily. May need donor support to get this jump-started and support from organized retailers such as Flipkart, Amazon, and Indiamart for distribution.

<sup>7</sup>With some training and guidance this kind of manufacturing effort can be taken-up by self-help-groups (SHGs) very easily. May need donor support to get this jump-started and support from organized retailers such as Flipkart, Amazon, and Indiamart for distribution.

<sup>8</sup>Given the critical importance of Oxygen Therapy, particularly when there is a concern that mechanical ventilation capacity may be in short supply in several parts of the country, it would be important for the PCPs to immediately review their current oxygen availability at facility level, assess the supply and transport capacity of oxygen cylinders (often available in the largest town nearby), and have 5-10 additional oxygen concentrators on hand per facility (which generate oxygen from air, and therefore do not have logistics issues).

<sup>9</sup>Defined as an acute respiratory infection with (a) history of fever or measured temperature  $\geq 38^\circ\text{C}$  and cough; (b) onset within the last 10 days; and (c) requiring hospitalization (MoHFW, 2020d, p 2).

Therapy	Implementation
High-flow nasal oxygen	Might prevent or delay the need for intubation
Tidal volume	Use 6 mL/kg per predicted bodyweight (can reduce to 4 mL/kg per predicted bodyweight)
Plateau airway pressure	Maintain at <30 cm H <sub>2</sub> O if possible
Positive end-expiratory pressure	Consider moderate to high levels if needed
Recruitment manoeuvres	Little value
Neuromuscular blockade	For ventilator dyssynchrony, increased airway pressure, hypoxaemia
Prone positioning	For worsening hypoxaemia, PaO <sub>2</sub> /FiO <sub>2</sub> <100–150 mm Hg
Inhaled NO	Use 5–20 ppm
Fluid management	Aim for negative fluid balance of 0.5–1.0 L per day
Renal replacement therapy	For oliguric renal failure, acid-base management, negative fluid balance
Antibiotics	For secondary bacterial infections
Glucocorticoids	Not recommended
Extracorporeal membrane oxygenation	Use EOLIA trial criteria <sup>3</sup>

Figure 1: Therapeutic Options for COVID-19 Related Severe ARDS (Matthay et al., 2020)

respiratory distress, central cyanosis, shock, coma or convulsions) should receive oxygen therapy during resuscitation to target SpO<sub>2</sub>  $\geq$  94%; otherwise, the target SpO<sub>2</sub> is  $\geq$  90%. All areas where patients with SARI are cared for should be equipped with pulse oximeters, functioning oxygen systems and disposable, single-use, oxygen-delivering interfaces (nasal cannula, simple face mask, and mask with reservoir bag). Use contact precautions when handling contaminated oxygen interfaces of patients with COVID – 19” (MoHFW, 2020d, p 7)<sup>10</sup>. “Given the practical constraints on substantially increasing the global availability of ECMO services in the next few months, it is important to emphasise the other evidence-based treatment options that can be provided for patients with severe ARDS from COVID-19 (figure 1) Before endotracheal intubation, it is important to consider a trial of high-flow nasal oxygen for patients with moderately severe hypoxaemia. This procedure might avoid the need for intubation and mechanical ventilation because it provides high concentrations of humidified oxygen, low levels of positive end-expiratory pressure, and can facilitate the elimination of carbon dioxide. WHO guidelines support the use of high-flow nasal oxygen in some patients, but they urge close monitoring for clinical deterioration that could result in the need for emergent intubations because such procedures might increase the risk of infection to health-care workers.” (Matthay et al., 2020).

An analysis of 72,314 cases by the Chinese CDC suggests that the severity profile for COVID-19 patients will be in the shape of a pyramid as shown in figure 2, indicating that, of the total number of patients, almost 80% could recover at home with mild to moderate illness and, of the balance 20%, 75% could be treated for breathlessness and hypoxia using oxygen therapy in primary care settings, and only 25% of them (i.e., 5% of the total) may need hospital-based intensive care or mechanical ventilation. “Unfortunately, the headline figures of ICU requirements for COVID-19 patients in resource-rich settings are masking the need for essential care. Attention is directed towards expensive, high-tech equipment that demands highly trained providers while neglecting low-cost essential care. To avoid this neglect [...] a primary policy focus on basic, effective actions with potential population impact [is recommended]” in which, the need for facility readiness and good quality clinical practice for the dual aspects of identification and care of critically ill patients should be stressed, “the central role of oxygen therapy should be emphasised, oxygen supplies and delivery systems secured, and guidelines for sustainable and appropriate use issued” (Baker et al., 2020).

- **Fluid Management:** “Use conservative fluid management in patients with SARI when there is no evidence of shock: Patients with SARI should be treated cautiously with intravenous fluids, because aggressive fluid resuscitation may worsen oxygenation, especially in settings where there is limited availability of mechanical ventilation” (MoHFW, 2020d, p 7).

<sup>10</sup> Also see interim guidance from the WHO on “Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected” (WHO, 2020a).

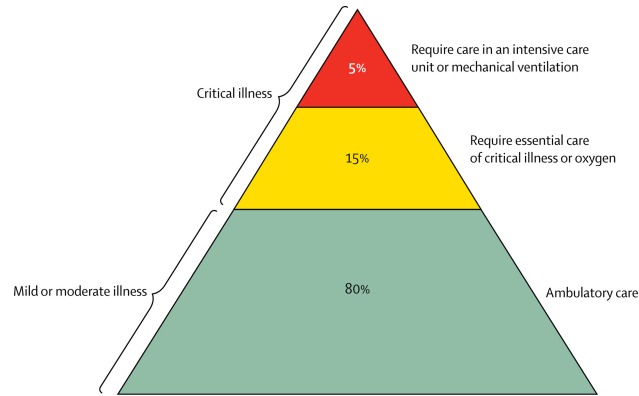


Figure 2: COVID-19 Severity Profile (Baker et al., 2020)

- **Antimicrobials:** “Give empiric antimicrobials to treat all likely pathogens causing SARI. Give antimicrobials within one hour of initial patient assessment for patients with sepsis: Although the patient may be suspected to have COVID - 19, Administer appropriate empiric antimicrobials within ONE hour of identification of sepsis. Empirical antibiotic treatment should be based on the clinical diagnosis (community-acquired pneumonia, health care-associated pneumonia [if infection was acquired in healthcare setting], or sepsis), local epidemiology and susceptibility data, and treatment guidelines. Empirical therapy includes a neuraminidase inhibitor for treatment of influenza when there is local circulation or other risk factors, including travel history or exposure to animal influenza viruses. Empirical therapy should be de-escalated on the basis of microbiology results and clinical judgment” (MoHFW, 2020d, p 7).
- **Specific COVID-19 Treatments & Clinical Research:** “There is no current evidence from RCTs to recommend any specific treatment for suspected or confirmed patients with COVID - 19. No specific anti-virals are recommended for treatment of COVID – 19 due to lack of adequate evidence from literature. The use of Lopinavir/ Ritonavir in PEP regimens for HIV (4 weeks) is also associated with significant adverse events which many a times leads to discontinuation of therapy” (MoHFW, 2020d, p 14).
- **Hydroxy-Chloroquine Prophylaxis:** Hydroxy-chloroquine is found to be effective against coronavirus in laboratory studies and in-vivo studies. Its use in prophylaxis is derived from available evidence of benefit as treatment and supported by pre-clinical data. The following recommendation for the use of hydroxy-chloroquine as a prophylactic agent against SARS-CoV-2 infection is based on these considerations, as well as risk-benefit consideration, under exceptional circumstances that call for the protection of high-risk individuals (MoHFW, 2020a). The National Taskforce for COVID-19 recommends the use of hydroxy-chloroquine for prophylaxis of SARS-CoV-2 infection for selected individuals as follows:
  - Eligible individuals: (a) Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19 and (b) Asymptomatic household contacts of laboratory confirmed cases.
  - Dose: (a) Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19: 400 mg twice a day on Day 1, followed by 400 mg once weekly for next 7 weeks; to be taken with meals; (b) Asymptomatic household contacts of laboratory confirmed cases: 400 mg twice a day on Day 1, followed by 400 mg once weekly for next 3 weeks; to be taken with meals.
  - Exclusion/contraindications: (a) The drug is not recommended for prophylaxis in children under 15 years of age; (b) The drug is contraindicated in persons with known case of retinopathy, known hypersensitivity to hydroxychloroquine, 4-aminoquinoline compounds

- **Key considerations:** The drug has to be given only on the prescription of a registered medical practitioner; Advised to consult with a physician for any adverse event or potential drug interaction before initiation of medication; (c) The prophylactic use of hydroxychloroquine to be coupled with the pharmacovigilance for adverse drug reactions through self-reporting using the Pharmacovigilance Program of India (PvPI) helpline/app; (d) If anyone becomes symptomatic while on prophylaxis he/she should immediately contact the health facility, get tested as per national guidelines and follow the standard treatment protocol; (e) All asymptomatic contacts of laboratory confirmed cases should remain in home quarantine as per the national guidelines, even if they are on prophylactic therapy.
- **Use of Steroids:**
  - “Do not routinely give systemic corticosteroids for treatment of viral pneumonia or ARDS outside of clinical trials unless they are indicated for another reason: A systematic review of observational studies of corticosteroids administered to patients with SARS reported no survival benefit and possible harms (avascular necrosis, psychosis, diabetes, and delayed viral clearance). A systematic review of observational studies in influenza found a higher risk of mortality and secondary infections with corticosteroids; the evidence was judged as very low to low quality due to confounding by indication. A subsequent study that addressed this limitation by adjusting for time-varying confounders found no effect on mortality. Finally, a recent study of patients receiving corticosteroids for MERS used a similar statistical approach and found no effect of corticosteroids on mortality but delayed lower respiratory tract (LRT) clearance of MERS-CoV. Given lack of effectiveness and possible harm, routine corticosteroids should be avoided unless they are indicated for another reason” (MoHFW, 2020d, p 7–8).
  - “For patients with progressive deterioration of oxygenation indicators, rapid worsening on imaging and excessive activation of the body’s inflammatory response, glucocorticoids can be used for a short period of time (3 to 5 days). It is recommended that dose should not exceed the equivalent of methylprednisolone 1 – 2mg/kg/day. Note that a larger dose of glucocorticoid will delay the removal of coronavirus due to immunosuppressive effects” (MoHFW, 2020d, p 13).
- **Pregnancy:** “Consultations with obstetric, neonatal, and intensive care specialists (depending on the condition of the mother) are essential” (MoHFW, 2020d, p 13).

## 5 Mental Wellbeing of PCPs

Protecting the physical health of PCPs is very important but so is ensuring their mental wellbeing (Lai et al., 2020).

- **WYSA:** is a UK-NHS approved, ORCHA (ORCHA, 2020) rated (93% overall rating; 100% on clinical safety) emotionally intelligent chatbot which employs research-backed, widely used techniques such as CBT, DBT, Yoga, and meditation, to support users with stress, anxiety, sleep, loss and a whole range of other mental health and wellness needs (<https://appfinder.orchha.co.uk/Review/209172/>) with good evidence of impact (Inkster et al., 2018). In addition to their regular content, they have launched two online tools specifically to address the needs arising out of the ongoing epidemic<sup>11</sup>:
  - Tool-kits to manage pandemic anxiety and social isolation, which are available for free to everyone ([http://bit.ly/Wysa\\_self\\_care](http://bit.ly/Wysa_self_care)).
  - Free access to their premium content to PCPs (and other health workers) to help manage burnout, on a self-registration basis (<https://wysa.io/healthcare>).
- **Mind:** the UK National Association for Mental Health (Mind, 2020) has developed guidance, which is being recommended by the Royal College of Psychiatrists, UK, for adults to use for their own well-being during the current situation: [www.mind.org.uk/information-support/coronavirus-and-your-wellbeing](http://www.mind.org.uk/information-support/coronavirus-and-your-wellbeing).

<sup>11</sup>All of their content is currently in English language at the moment and will need donor support to rapidly convert into Hindi and other Indian languages.





Figure 3: The Banyan Academy Helpline

- **Indian Association of Clinical Psychologists (Volunteer Psychologists):** “In view of the CORONA-VIRUS outbreak, Indian Association of Clinical Psychologists extends the support in the form of providing Psychological counselling and Psychological First Aid to those who need it throughout the country. To facilitate the same, this list of volunteers (<http://iacp.in/downloads/iacp/covid.pdf>) is provided in public domain to utilise psychological services- i.e tele-counselling. The list is functional during the COVID-19 epidemic.”
- **The Banyan Academy of Leadership in Mental Health:** is a research and teaching institution ([www.balm.in](http://www.balm.in)) closely affiliated with The Banyan (<https://thebanyan.org/>), which also offers tele-consultation services for both PCPs and their patients, in multiple Indian languages, including English, Hindi (figure 3), Tamil, and Malayalam.

## 6 Technology Resources for PCPs

In order to be well-equipped to address the challenges posed by COVID-19 as well as to better manage their routine practice so that they are able to offer comprehensive, protocol-guided (Mor, 2020c) service to their patients, there will be a need for them to start to build their technology capabilities, ideally using software that is compliant with India Health Stack guidelines for national interoperability (Mor, 2020b).

**IntelHealth** ([www.intelehealth.org](http://www.intelehealth.org)) is a technology platform for delivering primary health care services using a digital assistant as well as telemedicine. Built into the platform is a digital assistant, *Ayu*, with protocols for evidence based primary care (like screening, diagnosis, and management protocols) to support various types of primary care workers like doctors, nurses, and community health workers. Data are stored in an electronic health records system that supports ePrescribing, referrals, and telemedicine. For cases beyond the level of training of the PCP they can request for teleconsultations with remote doctors through the platform. For more information please reach out to Vibha Bhirud (email: [covidresponse@intelehealth.io](mailto:covidresponse@intelehealth.io); WhatsApp: +919619110255), Director Programs, IntelHealth.

## 7 Tele-Consultation Guidance for PCPs

Tele-health services (Augenstein, 2020) could provide valuable support at this time both directly to patients and to PCPs. Several providers including have the capacity to offer tele-consultations<sup>12</sup> to patients<sup>13</sup>.

### 7.1 Care Fit

Care Fit ([www.cure.fit/care](http://www.cure.fit/care)) is an online-offline primary care platform being built by Cure Fit ([www.cure.fit](http://www.cure.fit)) which has recently added a capability which allows PCPs to directly consult with its network of specialists using a tele-health approach without the need for the patient to travel or even speak to the specialist directly. For more information please reach out to Dr Sania Shahbaz Hasnain ([sania.hasnain@healthface.in](mailto:sania.hasnain@healthface.in)).

### 7.2 Remote Consultation by PCPs

Given the need for infection control and the inability of patients to travel to their primary care facility, it may also become necessary for PCPs to consult, even with their regular patients, over the telephone or a video connection on COVID-19. Figure 4 provides an outline of the shape such a consultation may take (*in the UK GP context*) which may be useful to keep in mind. A particular challenge in the remote context would be the assessment of breathlessness. There are unfortunately no validated tests for the remote assessment of breathlessness in an acute primary care setting, but there was broad consensus (*amongst doctors in the UK*) around the following advice (Greenhalgh et al., 2020, Box 1):

1. Ask the patient to describe the problem with their breathing in their own words, and assess the ease and comfort of their speech. Ask open ended questions and listen to whether the patient can complete their sentences: “How is your breathing today?”
2. Align with the NHS 111 symptom checker, which asks three questions (developed through user testing but not evaluated in formal research): (a) “Are you so breathless that you are unable to speak more than a few words?”; (b) “Are you breathing harder or faster than usual when doing nothing at all?”; (c) “Are you so ill that you’ve stopped doing all of your usual daily activities?”.
3. Focus on change. A clear story of deterioration is more important than whether the patient currently feels short of breath. Ask questions such as: (a) “Is your breathing faster, slower, or the same as normal?”; (b) “What could you do yesterday that you can’t do today?”; and (c) “What makes you breathless now that didn’t make you breathless yesterday?”.
4. Interpret the breathlessness in the context of the wider history and physical signs. For example, a new, audible wheeze and a verbal report of blueness of the lips in a breathless patient are concerning. There is no evidence that attempts to measure a patient’s respiratory rate over the phone would give an accurate reading, and experts do not use such tests. It is possible, however, to measure the respiratory rate via a good video connection. More generally, video may allow a more detailed assessment and prevent the need for an in-person visit.

## 8 Training & Education Resources for PCPs

- **Noora Health (Patient / Provider Resources):** Leveraging their experience of working with government and private hospitals in many parts of the country in area of patient education for post-operative home-care of discharged patients, Noora Health ([www.noorahealth.org](http://www.noorahealth.org)) have built out a number of COVID-19 specific capabilities:

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<sup>12</sup>The practice of telemedicine, in particular, tele-prescribing has recently been formally approved by the Board of Governors which is now formally responsible for the activities of the erstwhile Medical Council of India (MCI, 2020), thus removing the most significant impediment to the practice of telemedicine in India.

<sup>13</sup>As tele-health gains prominence, and potentially becomes the primary access channel for primary care for people, it is possible that it leads to even more fragmentation of healthcare (Mor, 2020a), where the GP is no longer fully-informed, as many fear, about the full health status of her patient (Liaw et al., 2019).

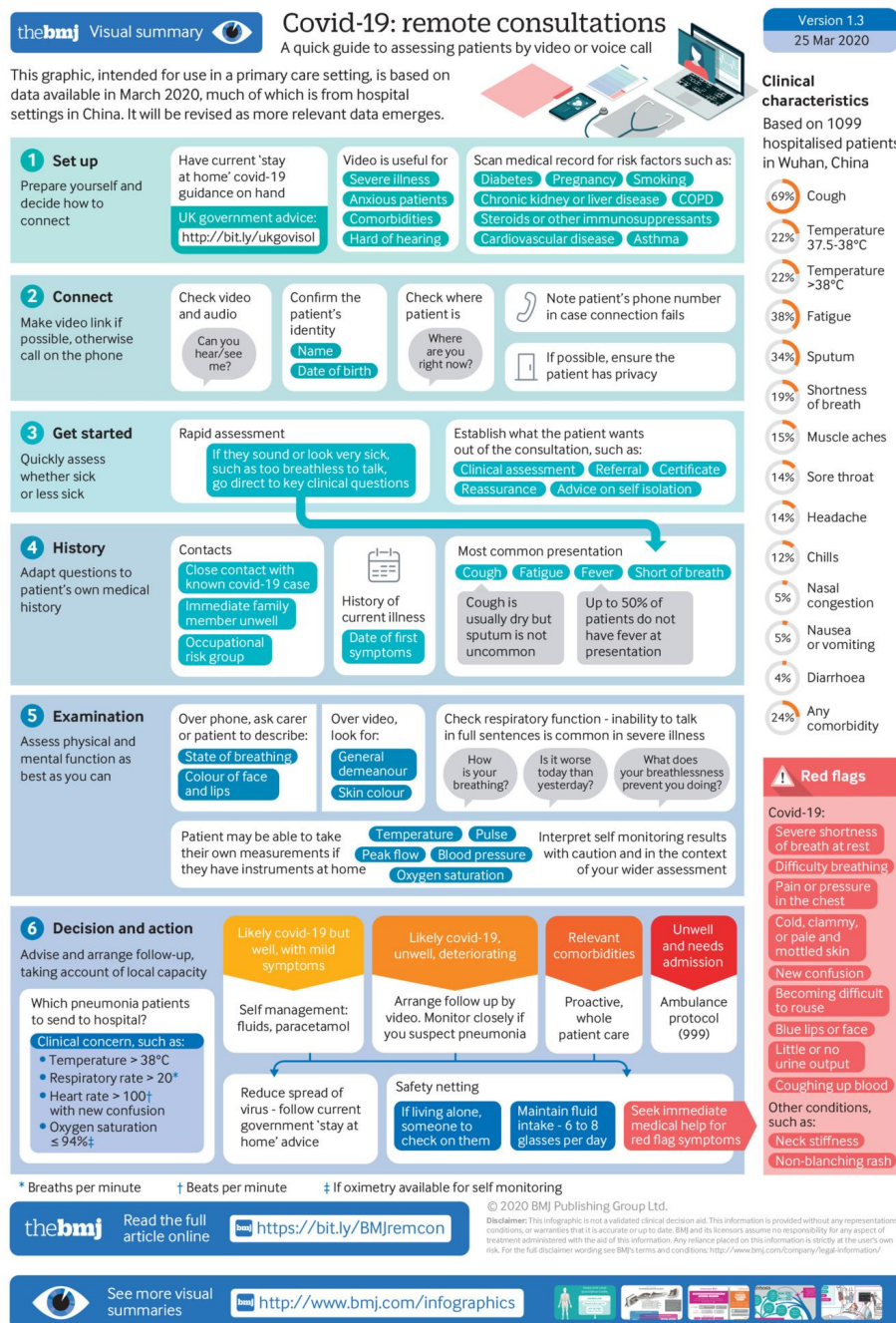


Figure 4: Covid-19: Remote Assessment in Primary Care (Greenhalgh et al., 2020)

- Based on requests, ability to create (multi-lingual) specific-materials for PCPs/other providers on how to facilitate educating patients/families on COVID and related issues in the primary care settings (contact: Nikhil Ramnarayan at [nikhil@noorahealth.org](mailto:nikhil@noorahealth.org); Shahed Alam at [shahed@noorahealth.org](mailto:shahed@noorahealth.org)).
  - Existing print and video content ready for prevention, self isolation, and healthcare worker safety, available to share (contact above).
  - With a team of 50 outbound tele-callers, ability to offer proactive phone training and for reaching out over phone calls with advice and guidance on COVID-19 to people from rural or other backgrounds.
  - With a team of more than 500 government district hospital nurses across 4 states that are certified master trainers in best practices around health education, the ability to deliver important and high quality information in local health systems
- **Intelesafe from Intelhealth:** IntelSafe ([www.intelehealth.org/intelesafe](http://www.intelehealth.org/intelesafe)) is an app and a website that currently provides critical resources for PCPs to stay safe while on the job, and plans to expand its offering to include other guidance for PCPs over time. It currently has training modules on PPE use, infection control measures to reduce spread in healthcare settings, PPE reuse and DIY alternatives, a WhatsApp helpline (+919825989750) for PPE questions, and a mental health counselling helpline for healthcare providers ([www.intelehealth.org/mental-health-consult](http://www.intelehealth.org/mental-health-consult)).
  - **Cloudphysician:** Cloudphysician (<https://cloudphysician.net/#goal>) is a tele-ICU provider with hospitals and mini-hospitals as its clients across India. With its tele-ICU platform, RADAR, it is possible for 1 intensivist to cater to the needs of 60-80 sick patients in multiple locations as opposed to the current ratio of 1:15, where an intensivist is at the bedside. They have opened to the public their COVID-19 resource folder which has protocols and recommendations that they have created for their network hospitals to prepare for COVID-19 (<https://cloudphysician.net/#covid>).
  - **Introductory Course on COVID-19 from WHO:** This open-access course (WHO, 2020c) is approximately of a 3 hour duration (Hindi version also available), provides a general introduction to emerging respiratory viruses, including novel coronaviruses, and comprises the following modules:
    - Module A: Introduction to Emerging respiratory viruses, including COVID-19; Overall learning objective: To be able to explain why emerging respiratory viruses, including COVID-19, are a global threat to human health.
    - Module B: Detecting Emerging respiratory viruses, including COVID-19: Surveillance and Laboratory investigation; Overall learning objective: To describe how to detect and assess an emerging respiratory virus outbreak.
    - Module C: Risk Communication and Community Engagement; Overall learning objective: To describe what strategies should be used to communicate risk and engage communities to detect, prevent and respond to COVID-19.
    - Module D: Preventing and Responding to an emerging respiratory virus, including COVID-19; Overall learning objective: To describe strategies for preventing and controlling emerging respiratory pathogens, including coronavirus outbreaks.

## 9 Other Resources for PCPs

- **Government of India Resources**
  - Helpline for PCPs: “AIIMS, New Delhi is running a 24x7 helpline (+919971876591) to provide support to the treating physicians on clinical management of COVID-19” (MoHFW, 2020d, p 15).
  - Ministry of Health and Family Welfare, Government of India: Official Website: This provides the most updated guidance on the disease for use both by the general public and health care providers ([www.mohfw.gov.in](http://www.mohfw.gov.in)). The Ministry has recently issued an informative note on the role

of frontline workers in the prevention and management of COVID-19 (MoHFW, 2020e), which is also available in Hindi.

- General guidance from the Government of India on COVID-19: [www.mygov.in/covid-19](http://www.mygov.in/covid-19)
- Government of India WhatsApp Helpline for the General Public: +919013151515

• **External COVID-19 Reference Resources:**

- Analytical Guidance from the Imperial College COVID-19 Response Team (table 1 has been produced by them): [www.imperial.ac.uk/mrc-global-infectious-disease-analysis/news--wuhan-coronavirus](http://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/news--wuhan-coronavirus)
- Brigham Clinical Guidelines Website: [www.covidprotocols.org](http://www.covidprotocols.org)
- General Resources from Massachusetts General Hospital: [www.massgeneral.org/news/coronavirus/coronavirus-latest-updates](http://www.massgeneral.org/news/coronavirus/coronavirus-latest-updates)
- University of Washington COVID-19 Resources Link: <https://covid-19.uwmedicine.org/Pages/default.aspx>
- COVID-19 Handbook from China (AliBaba): <https://covid-19.alibabacloud.com/>
- Ten Global Digital Health Solutions for Covid-19: Vota, 2020
- Detailed technical discussions on the features, evaluation and treatment Coronavirus (COVID-19): Cascella et al., 2020; WHO, 2020a
- Clinical Management of Patients with Confirmed COVID-19 from US-CDC: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>
- A South African perspective on Primary care management of the coronavirus (COVID-19): Mash, 2020
- A training guide for Hospital staff from Dr Shruti Tandon of Jaslok Hospital (intensivist, working directly with COVID-19 patients) on how to use a Mechanical Ventilator: <https://www.youtube.com/watch?v=cs3yGR4N3j4>
- Emergency Airway Management Simulation in Critically ill COVID-19 Cases from Daily Rounds (<https://dailyrounds.org/>): <https://www.youtube.com/watch?v=zwbunGHaw0>
- Oxygenation Strategies in the Emergency Department: A COVID-19 Simulation Walkthrough from Daily Rounds (<https://dailyrounds.org/>). **These strategies could also guide PCPs who wish to offer emergency support to severely ill COVID-19 patients:** <https://www.youtube.com/watch?v=NxywpG3qXSk>

• **COVID-19 Data and Analysis:**

- Global Detailed Analysis: <https://ourworldindata.org/coronavirus>
- Johns Hopkins University COVID-19 Tracker: <https://systems.jhu.edu/>;
- WHO Situation Reports (WHO, 2020b)
- Indian COVID-19 Tracker: <https://corona.health-check.in/>

• **COVID-19 PPE Sources:**

- Supply & Demand Matching: [www.helphospitals.in](http://www.helphospitals.in)
- Supply to Hospitals and PCPs: [covid@moglix.com](mailto:covid@moglix.com)
- Search for Suitable Wholesale Supplier: [www.indiamart.com/medical-supplies.html](http://www.indiamart.com/medical-supplies.html)

- **Swasti's Covid19 (Response) Action Collaborative:** Leveraging its experience of working in several humanitarian emergencies Swasti (Swasti, 2018) has developed and promoted the “Covid19 (Response) Action Collaborative” (<https://swasti.org/covid19-response/>) to support multiple stakeholders to collaborate, coordinate, and integrate the Covid-19 Response. Their Collaborative can be used as, (a) a framework to guide strategy-for-response; (b) to contribute tools, training materials, technology, financial, and other resources; (c) seek any resources that are needed; and (d) connect with them and other partners ([covidaction@swasti.org](mailto:covidaction@swasti.org)).



Figure 5: AMRIT Outdoor Rural Fever-Clinic (Photocredit: Basic Healthcare Services, 2020)

## 10 Case Studies

### 10.1 Basic Healthcare Services, Rural Rajasthan

Basic Health Care Services (BHS, 2020) is a not-for-profit organization which runs multiple clinics and day-care centres in rural Udaipur serving members of the local migrant tribal communities. In response to the emerging COVID-19 crisis they have taken a number of steps. They have completely reorganized their clinics by, among other things, shifting patient consultation outdoors where there is more ventilation and more sunshine, and have created a separate examination area (figure 5) for patients who report with cough and fever, and have ensured adequate physical distancing in the waiting area. At their day-care centres they have stopped mothers and children from coming to the centre but are instead ensuring that cooked food is being home-delivered after taking due safety precautions during cooking and transportation. To ensure health provider safety they have started with Hydroxychloroquine prophylaxis for all their health workers and have made the continuous wearing of masks mandatory – a combination of surgical and double layered cloth masks, two masks in a day, to be autoclaved in the evening (figure 5). They have also stepped up the training efforts for their staff. They have prepared themselves to offer emergency oxygen therapy (figure 6) to their patients, have ensured that each clinic has a sufficient stock of oxygen cylinders, and are ensuring that they are full (and have made arrangements to transport the empty ones to be refilled in the nearest town). For patient education and care they have started a telephone counselling service to provide information and to dispel myths, both among their own community-volunteers and community-contacts. They have also listed their chronic patients who stay far away and are both, organizing home visits for them, as well as providing them with medicines for a month at a time. Migrants are receiving special counselling concerning their own safety as well as on how they can enhance the well-being of their families and communities. For more information please reach out to Dr Pavitra Mohan (pavitra@bhs.org.in), Founder, Basic Healthcare Services, & Director, Health Services, Aajeevika Bureau (www.aajeevika.org).

### 10.2 Innovators in Health, Rural Bihar

Innovators in Health (IIH, 2020) is a community-based healthcare organization which has been working in rural Bihar since 2010, with a focus on tuberculosis, maternal and newborn health, and mental health. They partner with the government-owned health system in Bihar, and work with it to improve its service delivery in these three areas. Through their work they have, for example, more than doubled the tuberculosis case-finding rates and have screened more than 80,000 patients at their doorsteps. They are responding to the threat of a COVID-19 outbreak on several fronts. The first is ensuring continuity of regular health services even during these times, by ensuring that (a) the drug supply to the approximately 1,800 TB patients under-treatment is uninterrupted, (b) deliveries continue to be safe, and (c) maternal and neonatal emergencies are expeditiously handled at the right facility. They have had success with using a dial-in information service





Figure 6: AMRIT Critical Care Beds with Oxygen Cylinder (Photocredit: Basic Healthcare Services, 2020)



Figure 7: Interactive Voice Response Service (Photocredit: Innovators in Health, 2020)



Figure 8: Community Outreach (Photocredit: The Banyan, 2020)

in maternal mental health (figure 7), and are now exploring a COVID-19 “radio channel” in the vernacular, via IVRS, in collaboration with Gram Vaani (Gram Vaani, 2020). The IVRS will seek to present COVID-19 guidance in the form of a dialogue, and serialize it over episodes. They are also considering counseling on mental well-being for health-workers via IVRS. For more information please reach out to Manish Bhardwaj, PhD (mbhardwaj@innovatorsinhealth.org), Founder & CEO, Innovators in Health.

### 10.3 The Banyan

The Banyan (<https://thebanyan.org/>) is a Chennai headquartered non-profit which works in the field of mental health and has been in operation since 1993. It has active operations in the states of Tamil Nadu, Kerala, and Maharashtra, and manages a total of 400 persons-with-mental-illness (PMIs) as residents, 1,000 PMIs as outpatients, and 350 staff members. These PMIs and staff members are based in multiple settings, including, Emergency Care and Recovery Centres (ECRCs), Shelter Homes, Home Again, and Outreach Services. They have put in place detailed protocols for PMIs and staff to be used in each of these settings. Some of these are mentioned below:

- **Isolation:** If a resident in an ECRC develops fever, cold, cough, or any other difficulty, (a) the resident should immediately be accommodated in the designated ward identified for this purpose; (b) should be encouraged to use a mask provided in the room to prevent spread of the infection; (c) the room to have amenities such as a television, a phone, and a computer; (d) the resident should be monitored closely and discharged into the dormitory only after the constitutional symptoms disappear, or appropriately referred if symptoms get worse; (e) staff working in isolation spaces must use hand sanitizers, wear masks, and safely dispose them off after they leave the ward.
- **Home Again (HA):** Home Again locations include Chennai, Chengalpet, Trichy, Tiruvannamalai, Calicut, Malappuram, Thrissur, Ulwe, and Ratnagiri. HA Personnel should: (a) routinely screen residents 50 years and above for fever, cough, and cold; (b) if residents are ill, while it could simply be a minor issue, but take precautions anyway and use a room exclusively for isolating them; (c) for the ill resident record temperature, pulse, and respiratory rates every fourth hour; monitor the level of hydration and blood pressure every day; (d) if they are running a temperature, they can be given Paracetamol 500mg to control and reduce the fever; (e) encourage them to have regular meals, drink fluids, and wash their hands with soap and water frequently or before they touch their eyes, nose, and



mouth; (f) encourage other residents to engage in activities of their choice within their home, mood to be kept as positive as can be; encourage use of television, radio, art kits, and open spaces as well.

- **Community Outreach:** (a) sensitize the homeless person with mental illness/other homeless persons on COVID-19 – they may be completely unaware (figure 8); (b) emphasise preventive measures and the need for social distancing; (c) provide them with food and water and ensure continuity of the same; (d) assess (keeping in mind safety protocols) whether they have any physical symptoms of distress related to the virus (breathlessness, fatigue, fever, or cough); (e) identify people who have lost their livelihood because of COVID-19, some of them can be involved in outreach and other such activities as paid workers; and (f) maintain a database. *This activity has been put on-hold during the national lock-down.*
- **Critical Time Interventions:** Detailed guidelines for Critical Time Interventions (CTI: [www.criticaltime.org/wp-content/uploads/2009/04/cti-handout4.pdf](http://www.criticaltime.org/wp-content/uploads/2009/04/cti-handout4.pdf)) by The Banyan staff with Homeless Persons include: (a) social workers, health care workers, and drivers to carry masks and hand sanitizers, besides the welcome kit for CTI and for the possible client as well; (b) the CTI team to have adequate information and knowledge about COVID-19 symptoms, and necessary precautions should be taken during the process of CTI and community interaction; (c) unwell team members are restricted from participating in CTI(s); and (d) where necessary, reiterate the need to practice social distancing to the general community whilst interacting with the homeless person.
- **Homeless Populations:** For Homeless Populations: (a) teams across sites to identify an operational area of a minimum of 3 sq.km radius, where outreach for those homeless will be undertaken for dispensing food, water, biscuits, soap, clothes, mosquito repellent creams, and other aids; (b) teams to connect with and augment local government services for medical and social care; (c) if those identified suffer from any acute medical illness, teams to enable and facilitate care in government facilities; (d) in situations that demand stronger and urgent social interventions, financial / livelihood assistance may be considered, based on availability of resources. *This activity has been put on-hold during the national lock-down.*
- **Maintain an Adequate Staffing Ratio at all times:** Ensuring that there a good patient-to-staff ratio so that all the pre-existing protocols as well as all the new COVID-19 related protocols can be followed to ensure patient well-being in all of its facilities.

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