



GOVERNMENT OF ODISHA  
HEALTH & FAMILY WELFARE DEPARTMENT

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No. HFW-SCH-I-COVID-0022-2021- 17370 /H Dated, 17-6-2021

From

Shri P.K. Mohapatra, IAS,  
Additional Chief Secretary to Government.

To

The Director, Capital hospital, Bhubaneswar

The Director, RGH, Rourkela

The Director, VIMSAR, Burla

All Collector & DMs

All Municipal Commissioners

All CDM&PHOs

The Superintendent, SCB MCH, Cuttack

The Superintendent, FM MCH, Balasore

The Superintendent, SLN MCH, Koraput

The Superintendent, MKCG, Berhampur

The Superintendent, PRM MCH, Baripada

The Superintendent, BB MCH, Balangir

The Superintendent, Sishu Bhawan

**Sub:- SOP for Operationalization of COVID Care Services for Children & Adolescents-Reg.**

Madam/Sir,

As you are aware that numbers of Covid-19 patients were noted to be higher than those were in 1st wave. The State needs to be in full preparedness for capacity building for managing high number of cases expected during predicted 3rd wave of the pandemic.

In view of the reports of incidence of COVID-19 cases amongst Children & Adolescents and possibility of future increases as predicted by public health experts, Government has been taking all possible measures for the care of Children & Adolescents.

Keeping in view of the above, Government after careful consideration have been pleased to approve the SOP for Operationalization of COVID Care Services

for Children & Adolescents. A copy of the same is enclosed herewith for your information and necessary action.

Yours faithfully,

Additional Chief Secretary to Government.

Memo No. 17371 /H

Dated, 17-6-2021

Copy with enclosure forwarded to MD, NHM, Odisha / MD, OSMCL, Bhubaneswar / all Directors under Health & FW Department for information and necessary action.

Memo No. 17372 /H

Deputy Secretary to Government.

Dated, 17-6-2021

Copy with enclosure forwarded to Deputy Secretary to Govt., FW Section, Health & FW Department for information and necessary action.

Memo No. 17373 /H

Deputy Secretary to Government.

Dated, 17-6-2021

Copy forwarded to OSD to Chief Secretary, Odisha for kind information of Chief Secretary.

Memo No. 17374 /H

Deputy Secretary to Government.

Dated, 17-6-2021

Copy forwarded to PS to Hon'ble Chief Minister, Odisha / PS to Hon'ble Minister, Health & FW for kind information of Hon'ble Chief Minister, Odisha / Hon'ble Minister, Health & FW.

Deputy Secretary to Government.

**Operationalization of  
COVID Care Services  
for Children &  
Adolescents  
Odisha**



## Executive Summary

1. Based on sero-surveillance reports, COVID 19 infection in children above 10 years of age occurs in similar frequency to that of adults, even though, among the confirmed cases <12% are individuals < 20 yr age in India.
2. Currently approximately 8% of the total COVID 19 cases are in the age group in the state.
3. Children have less severe disease than adults. In the majority, infection is asymptomatic or mildly symptomatic. It is uncommon to have moderate to severe covid in healthy children. Children with co-morbid conditions have more severe manifestations and poorer outcomes; they should be a priority group for vaccination, once vaccines are approved for children.
4. It is anticipated that there may be intermittent surges in the number of cases. A combined effort from private & public sector is needed to handle any surge in future after the withdrawal of the lockdown, school re-opening or as third wave over next 3-4 months.
5. The basic principles of equity and dignity of care should be followed.
6. The estimates for additional bed capacity for pediatric care may be calculated based on the peak daily cases in different districts during the second wave. From this number, projections for pediatric cases and number of admissions required can be derived.
7. It is desirable to augment the existing covid care facilities to provide care to children with acute covid 19. This will need additional pediatric specific equipment, infrastructure, and pediatric formulations. Also, adequate number of trained manpower- both doctors and nurses should be provided.
8. The health authorities should initiate capacity building programs for appropriate pediatric care. Only in standalone pediatric hospitals, will separate pediatric COVID care facilities may be developed.
9. **It is desirable to designate specific areas in the COVID facilities for pediatric care with provision to allow parents to stay with the child.**
10. For children with MIS-C, Mucormycosis and other post COVID residual ailments who test negative for acute COVID, care has to be provided by the existing pediatric facilities.
11. The document provides guidance about additional requirements for infrastructure, equipment and manpower.
12. The management protocols for children with acute COVID and MIS-C have been developed by the MoHFW which has already been circulated. Most drugs used in adults such as Ivermectin/ HCQ/ Favipiravir/ Antibiotics such as Doxycycline or Azithromycin have not been tested in children for prevention or treatment of COVID infection in children. Therefore, these are not recommended in children.
13. Majority of children have asymptomatic or mild illness and can be managed at home by parents at home. Treatment is symptomatic including paracetamol for fever, good monitoring for worsening by measuring respiratory rates, difficulty in respiration, oral intake and oxygen saturation.
14. In a community setting, ASHA / MPW should be involved for management of children at home and also monitor to assess the need for referral/ admission. **(Appendix 1)**
15. At the community level, it is important to train community health workers to pick red flag signs.,



16. All stake holders including the community should be educated by IEC.
17. Medical officers should provide leadership to ensure service delivery locally by involvement of community health workers. Public representatives, volunteers and public community leaders
18. For improving the quality of care and for capacity building, hand-holding of district hospitals and other facilities should be taken up by the medical colleges.
19. Capacity building by virtual & hand on training must be started soon. Development of centers for training through simulation technology may be initiated.
20. Three old Medical colleges with post-graduate departments will be designated as the Regional Centres of Excellence for COVID care as well as research. These centers can provide leadership in clinical management and training.
21. Telemedicine could be harnessed to its maximum possible capacity for reaching out to large number of facilities.
22. Data drives science, the importance cannot be over emphasised. Therefore, it is important to ensure data collection at all levels and transmission from community to higher centers.
23. A State level documentation should be ensured through State surveillance cell.
24. Appropriate IEC campaign should be launched for communication of correct information and dealing with the mis-information campaigns on media and social media.

### **Introduction**

In the ongoing COVID-19 pandemic, morbidity and mortality has mainly been seen in adults. In India, < 12% of all confirmed cases are in individuals < 20 yr (1), while this population constitutes approx. 41% of the population (2). Similarly, of all deaths due to COVID-19, only <2% are contributed by < 20 yr age group (3). MIS-C has been reported to occur in children; typically, the surge in cases of MIS-C follows that of the surge in total COVID-19 cases after approx. 2-6 weeks.

In the second wave, there was a sharp increase in the numbers of cases of COVID-19, the peak crossing 4 lakh new cases a day. The proportion of individuals < 20 yr of all COVID-19 confirmed cases has remained unchanged (1). However, with increase in the number of cases, the numbers of children and adolescents with confirmed COVID-19 have also increased.

Among adults with confirmed COVID-19 infection, it is well documented that 80% experience mild illness, approximately 14-15% experience moderate- severe disease and 5% are critically ill. Earlier reports had suggested that illness severity was associated with age (>60 years old) and co-morbid disease. During the second wave, large numbers of younger individuals had moderate-severe disease.

Till date, children have relatively been spared of serious disease and poor outcomes. As per the available sero-survey data prior to launch of vaccination drive, children 10-17 years had seropositivity similar to that in adults, i.e., 25.3% (4). However, the proportion of <20 yr olds among confirmed COVID-19 cases is lower than expected. It means that children are as susceptible as adults to infection, but a large majority remains asymptomatic. Even among the symptomatics, vast majority have mild disease only.



Various experts are predicting a third wave with a disproportionately high burden among the pediatric population. Re-opening of schools and colleges may contribute an increase in the infections in children. Therefore, there is a need to prepare for any future sudden surge of COVID cases in the pediatric age group. It is important to augment existing health facilities for children, particularly ICU and HDU facilities, while also strengthening community level care i.e., PHCs/ HWCs.

### **Estimated burden of COVID-19 in children**

National and international data indicated a maximum of 2-3% of such children requiring hospitalisation in wave 1/ 2. However, to meet the surge in India, we need to be ready for a little higher number and for an indicative projection, a figure of 5% of children with COVID have been estimated to be requiring hospitalisation. Box 1 provides estimates for requirement for beds for pediatric COVID care for various peak case numbers. It will be desirable to have estimates for the additional capacity at hospital level/ at level of administrative units to ensure adequate projections and preparedness; this is important because the incidence of COVID is likely to be variable in different areas and also the peak in number of cases will also be at different time points. The same framework could be used for estimating the bed requirements for different percentages of children needing hospitalization. Also, the focus has to be augmentation at all levels and not just of ICU beds. Investment in ICU beds alone or disproportionately will not be cost-effective.

### **Estimation and Projection of COVID19 cases Children's in Odisha (0-18 Yrs.)**

Currently approx. 8% of the total COVID19 cases are in of the age group of 0-18 Yrs. In USA the contribution of cases of 0-18 yrs age group is up to 14%. Considering the possible surge of infection in this age group, it is estimated to be around 15% of the infected population. In the State context, taking reference of the current wave of pandemic, where daily case detection comes around an average of 10,000, there could be nearly 1500 cases detected per day, of which about 20% will be needing hospitalisation (comes to about 300 cases each day), of whom about 5% children (15 number of cases each day) will be required to be put under intensive care support. Taking average stay of hospitalisation as 10 days, the active Covid-19 case of children in the age group of 0-18 years is tabled below:

Projections for beds requirement for pediatric COVID care ( projected total No: 10,000 cases)  
(Table 1)

Category	Beds Required	Calculation of cases	Remarks
General Hospitalization	2850	15% of Active Paediatrics cases	Calculated based on stay period of 10 days on average with 150 cases detected each day
Critical Care	150	5% of Active Paediatrics cases	
Total	3000	A total of 20% may require hospitalisation	

For providing care to children with MIS-C, the existing pediatric facilities have to be strengthened. As per the IPHS norms, approx. 10% of beds in a district hospital should be earmarked for sick children. These facilities should be upgraded to have adequate emergency facility, and enough HDU beds.

This document provides guidance for augmenting health facilities to be prepared for another surge, which may affect the children.

## Development of Guidance to Prepare for Managing an increased number of Children and Adolescents with COVID-19.

Proposed operationalization (figure 1)



The document presents an overall guidance. The implementation will require assessment of available facilities - a mapping of beds (ward/HDU/ICU) for children at various facilities, equipment, trained staff has to be carried out. To prepare for a possible surge, it will be good to have a database of all medical and paramedical staff who could contribute in the roll-out of pediatric care during the surge. The estimates of beds/ manpower required during a possible surge should be reviewed considering the local epidemiology of COVID.

Linking the community to DCHC/ DCH /district hospitals to Medical Colleges shall be done.

### Suspecting COVID-19 and testing in children

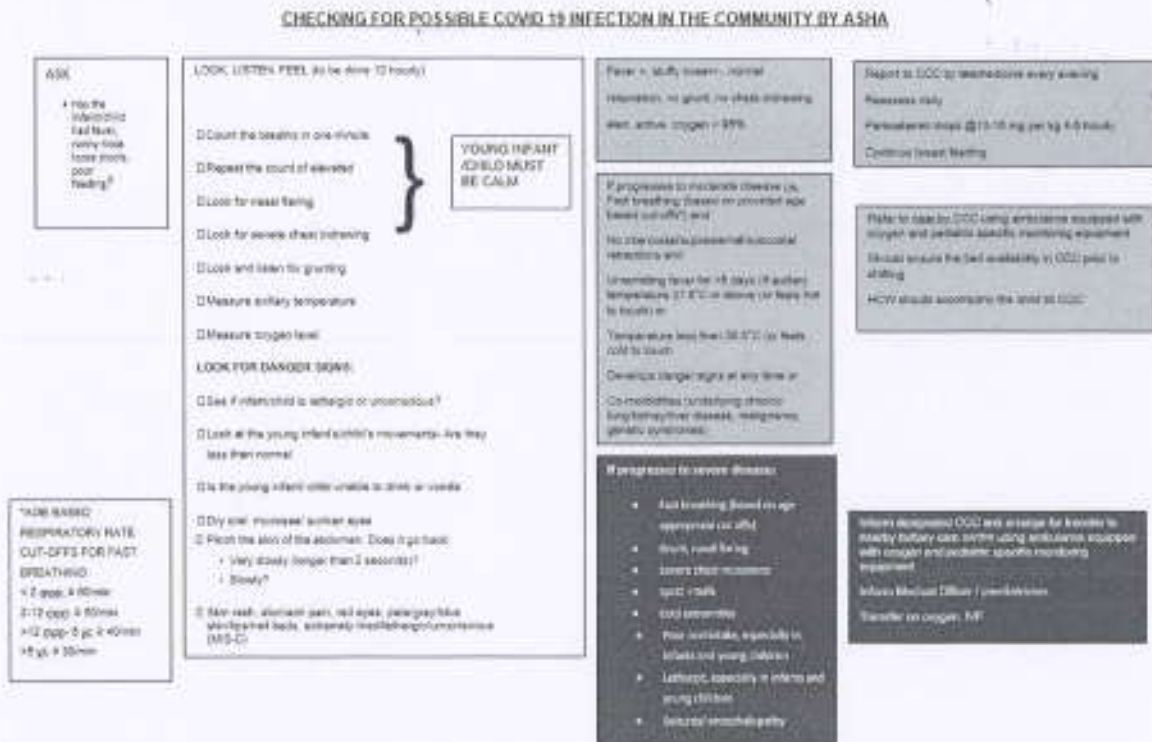
The guidelines developed by the MoHFW for management of pediatric COVID-19 outlines the symptoms of COVID-19 ([https://www.mohfw.gov.in/pdf/Protocol\\_for\\_Management\\_of\\_Covid\\_19\\_in\\_the\\_Paediatric\\_AgeGroup.pdf](https://www.mohfw.gov.in/pdf/Protocol_for_Management_of_Covid_19_in_the_Paediatric_AgeGroup.pdf)). The indications for testing children for COVID-19 are the same as that proposed by the Ministry/ ICMR. Presence of a recent/ current confirmed case of COVID-19 in a family member or a close contact raises the index of suspicion.

At a community level, use of the IMNCI framework to manage children may suffice. The framework will be able to identify sick children needing referral. However, all children with fast breathing and confirmed COVID-19 will need referral for admission. Providing pulse oximeter to the MPW/ ASHA will improve the monitoring and care of children. Children with malnutrition, children with disability, and conditions such as HIV infection, underlying cardiac, liver, kidney ailments, children on cancer chemotherapy and immunodeficiencies would need special attention.



The following figure shows the IMNCI approach to COVID-19 in children (Figure 2).

**Figure 2: IMNCI type approach for COVID-19 in children**



Children seeking care at various facilities should be screened for COVID if they have the clinical features of COVID). Children with indications for testing for COVID should be

- I. tested at the designated facilities;
- II. Children seeking care in ER should be tested in the facility itself. It will be desirable to have RAT kits in ER for quicker confirmation of the diagnosis. RAT may help in early diagnosis in symptomatic children, however negative test should be followed by RTPCR.
- III. Children who need admission and need to undergo a RTPCR/ CBNAAT, should be transferred to a holding area while awaiting the reports. The holding area should have requisite facilities for oxygen therapy, HDU/ ICU support.



## Management at Different Levels of Health care :

Depending upon the severity of the disease/ spectrum of pediatric covid cases , the patients may be advised for home isolation in case of asymptomatic cases or cases with mild symptoms. Such cases needs optimal parental care under supervision of the nearest available health care workers and on deterioration of the conditions may be referred to Covid care facilities, i.e DCHC/DCH.

To allow safe home isolation, parent must be adequately explained on their role (Annexure – I) and be required to monitor the child's health condition and maintain a chart at Annexure – II.

### Spectrum of Pediatric Covid Cases

Mild	Moderate	Severe	MIS-C
Mild Illness Sore Throat, Rhinorrhea, Cough, No Fast breathing	Moderate Illness Pneumonia, Fast Breathing (age based) ≥ 60/min for < 2 months ≥ 50/min for 2-12 months ≥ 40/min for 1-5months ≥ 30/min for > 5 Years No signs of severe pneumonia/ illness	Severe Illness Severe pneumonia, ARDS, Sepsis, Septic Shock, MODS Pneumonia with any of these: Cynosis SpO2 < 90% Increased respiratory efforts (grunting severe retraction) Lethargy, Somnolence, seizure	
↓		↓	
Home Isolation/ Community Based Care (CCC)		Facility Based Care DCHC/ DCH	

NB: The child may be shifted to higher and appropriate facility on deterioration.

#### Management of COVID-19 cases at community level

Children with mild COVID-19 can be managed in the community setting with home isolation under direct care of the parents and family.

- I. Parents should be explained about the danger signs for progression of disease (fast breathing, increased work of breathing, bluish discoloration, SpO2 < 94%, not accepting feeds, lethargy, fever persisting beyond 5 days, or high grade fever for more than 3 days).
- II. Community health workers (MPW and ASHA) should visit the home at least once daily for providing basic medications as necessary, and monitoring for vitals and danger signs. If any worsening is suspected, community health workers should contact the designated physician (MO/CHO) for a teleconsultation (phone call, video call). Community health workers should inform the patient transfer ambulance/team for transfer of the patients to DCHC/DCH in case there are indications for admission.
- III. Overall services should be monitored in a COVID Control Room under supervision of MO.

#### Community level preparations

1. A comprehensive IEC campaign which includes messages about pediatric COVID & role of different stake holders i.e Parents & other family members, neighbors & community health workers.
2. There has to a specific emphasis on vulnerable children.

3. **The orphanages, boarding schools, hostels would need special attention as these could be potential hotspots.**
4. Suggested components of the IEC campaign should include
  - Reassurance about disease in children
  - Symptoms and signs of COVID-19
  - Need for early testing for COVID-19 in case of symptoms
  - Principles of home isolation
  - Avoidance of self-medication for COVID-19
  - Whom to contact in case of emergency
  - Awareness about MIS-C
  - Not to neglect routine immunization of the child
  - Following COVID-19 appropriate behavior including use of mask, social distancing and hand hygiene. (Masks recommended in children aged 5 years or above, it may be used in children between the age of 2-5 years provided, it is possible.) and in schools.
  - COVID-19 vaccination for parents and family members & eligible children.
  - Continue other medications for chronic illnesses
  - Advice to parents to report the course of COVID 19
  - Advice to the schools on care of children.

This community level intervention will include pamphlets in vernacular languages, posters and home isolation kit.

Pulse oximeters can be loaned to a family with support of community platforms if needed and then can be used later for another family once the previous family recovers.

There are concerns about the reliability and ability to record accurate saturation with the finger pulse oximeters in the youngest children. So, adequate importance should be given to the symptoms and clinical findings to assess a child for seeking further medical advice.

Once COVID vaccines are approved for children, community level programs should focus on appropriate communication to facilitate a wide coverage.

#### **Objective of COVID Health Facilities**

1. To start with the Infrastructures available for Pediatrics COVID care will be utilized with augmentation of the capacity also by utilizing a portion of existing adult care COVID facilities. This is important for isolation of infected children away from other children.
2. Phase wise expansion of the capacity i.e bed strength, ICU/HDU numbers will be Started.
3. The capacity building in war footing basis for augmentation of the trained manpower strength will be undertaken through virtual modes and hand on training and also by using simulation technology in selected centers when made functional.



### Paediatrics care facilities created in the State:

1. All DHH & SDH, are required to earmark at least 10 beds for isolation of the suspected cases and will take steps for transfer of the symptomatic patients to the appropriate COVID care facilities.
2. At CHC level 2 to 4 beds may be earmarked as isolation bed for management of suspected cases until they get transferred to appropriate facility. The wards should be clearly demarcated with appropriate signage.
3. At Government Medical Colleges in the state the following numbers of beds constituting Isolation, HDU/PICU/SNCU/NICU beds.

(Table 2)

MEDICAL COLLEGE LEVEL	NICU	PICU / /SNCU	HDU	ISOLATION BED
VIMSAR, Burla	20	30	30	40
SCB, MCH, Cuttack	10	10		50
FMMCH, Balasore	10	10		10
SLNMCH, Koraput	4	2		15
MKCG, Berhampur	8	26	10	20
PRMMCH, Baripada	4	6	4	10
BBMCH, Balangir	8	10		10
Total	64	94	44	155

- All other COVID care centre's having ICU facilities need be required to earmarked 15% of the capacity to be earmarked for Pediatric patient including NICU& PICU care and isolation. All the CDM & PHOs and Collectors of the District are required to ensure the creation of such facilities.
- Considering the total number of Isolation beds to be 10,736 and ICU/HDU beds to be 4,072. Following numbers of beds can be earmarked for Pediatrics COVID Care.

(Table 3)

	Isolation beds	ICU/HDU beds (NICU/PICU/SNCU)	Total	Projected requirement
Beds to be Reserved in COVID Hospitals (Excluding MCH) for Pediatric Patients @15%	1455	408	1863	2850 Isolation Beds, 150 ICU/HDU Beds.(Total 3000 beds) considering 10,000 average daily incidence.
Beds in Medical College	155	202	357	
CCU / DCHC	780	0	780	
<b>Total Beds Available</b>	<b>2390</b>	<b>610</b>	<b>3000</b>	

- All Hospitals are advised to keep sufficient stocks of the medicine, consumables & Medical Oxygen for the purpose.
- In areas where case loads are expected to be high, establishment of standalone Pediatric COVID care facilities shall be considered.
- This infrastructure developed for COVID care needs to be augmented for managing paediatric COVID- 19 cases for future.

*This infrastructure will need additional resources to care for the increased number of child patients who often would need accompanying one family member. Children's area/wards should preferably be separate from adult wards for their mental comfort and to ensure parent is allowed to accompany the child, in contrast to the policies in adult area. In addition, to cope up with a COVID-19 related condition unique to children- MIS-C, there is also a need to strengthen the existing health facilities for providing assured quality critical care.*

### Emergency Services

The emergency services need strengthening. There has to be appropriate triage systems in



place. To keep patients suspected to have COVID-19, while awaiting reports, a holding area is required. The available holding area mainly for adult patients may be augmented to provide appropriate space for children. Such a facility should have facilities for oxygen therapy, HDU and preferably ICU support.

#### **Categorization of Health facility**

Currently, the COVID-19 hospitals are categorized into three types. As per the management algorithm for COVID-19 cases, infrastructure and other health system requirements varies by symptoms, wherein the severe cases are admitted in **dedicated COVID-19 hospitals (DCHs)**, cases with moderate symptoms, particularly those requiring oxygen support are admitted in **dedicated COVID-19 health centres (DCHCs)** and mild or asymptomatic cases are either home isolated or admitted in **COVID-19 care centres (CCCs)**.

DCHC has hospital beds with facilities to cater for Oxygen delivery with/ without High Dependency Units (HDU); the DCHC typically has all components of hospital care including Intensive Care Unit (ICU). DCHC are also referred to as Level 2 Care and DCH as Level 3 Care.

#### **Triaging/ deciding the level of care of children with COVID-19**

Children seeking care at a facility should be triaged appropriately at two stages

##### ***Initial Screening and Triage 1 at the health facility***

- 1) *Just at the entry gate, trained personnel with the recommended PPE to screen the patient by recording temperature, recording SpO<sub>2</sub>, take the history of the patient if they have come in contact with COVID-19 patient or if they have any symptom. Patients with low SpO<sub>2</sub> (<94%) should be immediately started on oxygen support in the triage area.*
- 2) *Attendants and patients beyond 5 years of age group, should wear mask and also follow hand hygiene. A distance of at least 1- meter to be maintained.*

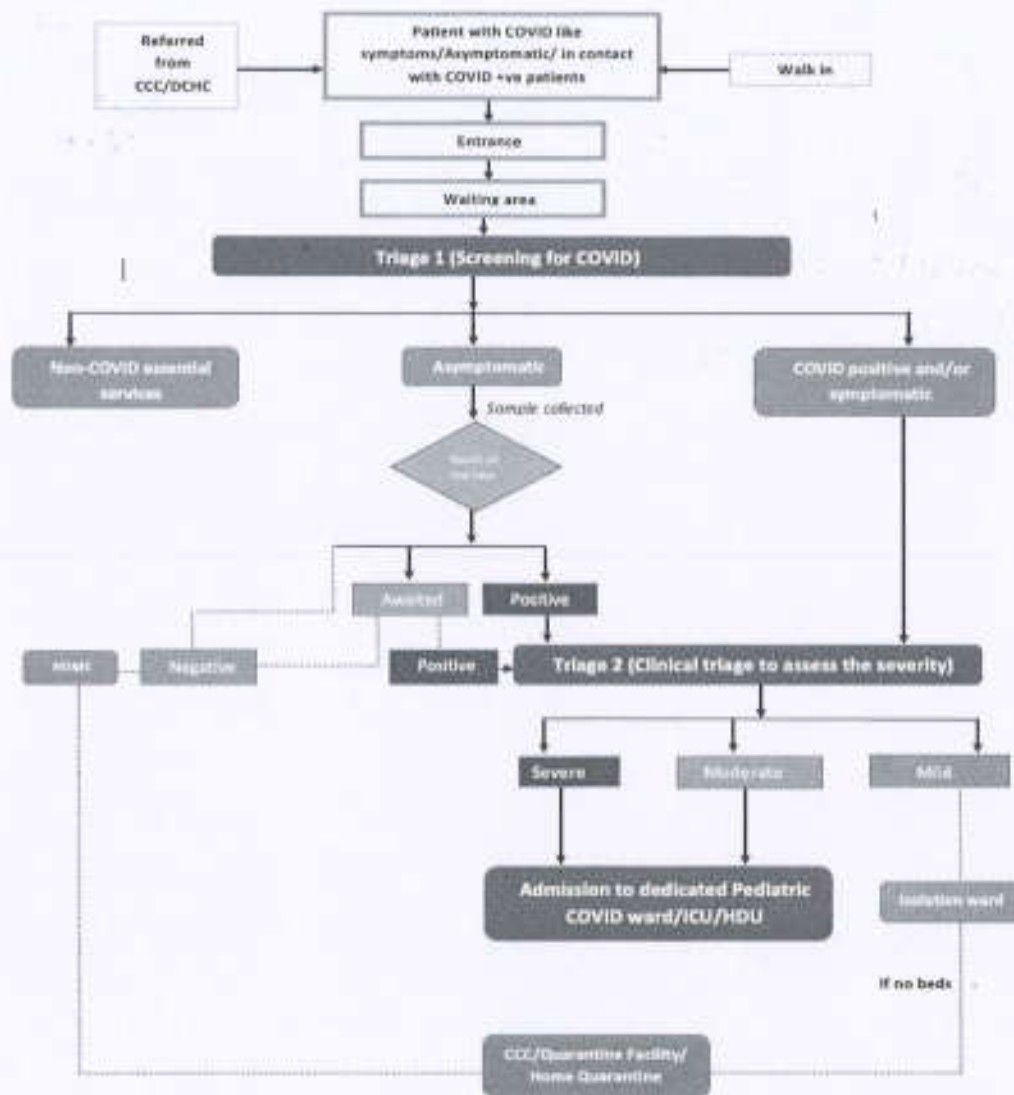
##### ***Triage 2***

- 1) *The cohorting of patients may further be done by the attending doctor based on the clinical observations and will be placed accordingly for appropriate management.*
- 2) *The moderate cases are shifted to the yellow/ orange area where COVID-19 testing is done (if not tested earlier). If COVID-19 positive, whether moderate or severe symptoms, they will be admitted to DCH/ DCHC for advance care. If the child tests negative for COVID-19, they are provided with non- COVID-19 essential services. Children in whom there is a strong suspicion of COVID, particularly with family member having COVID, but the child tests negative for COVID, the child should be managed in the holding area and the RTPCR should be repeated.*
- 3) *For patients showing severe symptoms and requiring immediate lifesaving measures, emergency should be equipped with ventilator support, access to oxygen support and multipara monitors.*
- 4) *After stabilization in Emergency, they can be shifted to paediatric ICU.*

Depending upon the type and severity of cases the three types of health facilities presently functional for care of patients with active COVID-19 and the patients will be shifted to the



appropriate facility as follows: (figure 3)



### COVID-19 Care Centre (CCC)

The COVID Care Centres are for cases that have been clinically assigned as mild cases or mild COVID suspect cases, in the scenario where there is no facility to isolate at home.

In case there is an increase in cases, additional centres can also be created in makeshift facilities so the existing hostels, hotels, schools, stadiums, lodges etc., both public and private facilities can be used for the same. All such facilities should have separate areas for suspected and confirmed cases with separate entry and exit.

All these COVID care centres have to be mapped to one or more DCHC in case the patient requires referral.

The AYUSH doctors can be utilised in giving clinical care in these hospitals.

### Dedicated COVID-19 Health Centres (DCHC)

The Dedicated COVID Health Centres are the hospitals that offer care for all cases whose severity has been clinically assigned as moderate. They will function in a separate zoning area.

### **Dedicated COVID-19 Hospitals (DCH)**

Dedicated COVID Hospitals offer comprehensive care primarily for those who have been clinically assigned as severe. They will function in a separate zoning area with Separate entrance & exit.

Augmentation of additional beds/ ICUs will be done in the existing identified DCH facilities. Also beds & ICUs can be shared with adults in case of older children. The Dedicated COVID Hospitals would also be referral centres for the Dedicated COVID Health Centres and the COVID Care Centres.

There should be ambulance facilities for smooth inter-facility transfers.

### **Augmentation of the above facilities for pediatric care**

Appropriate tools for monitoring should be available (e.g., pulse oximeters with pediatric and newborn size probes). Appropriate formulations of medications required for supportive care should be available. Adequately trained manpower (doctors and nurses) should be available for care of sick children (details below).

Common examples of anticipated care at different levels of care for Pediatric COVID patients are depicted in the following Table . These depend on the availability of specialist providers and the oxygen needs of the patient.

**Examples of type of Care vis-à-vis type of facility (Table 4)**

Type of Care	Examples
<b>DCHC</b>	<ul style="list-style-type: none"> <li>• Oxygen requirement up to 5 L/min to maintain oxygen saturation <math>\geq 95\%</math> with stable vital parameters</li> <li>• Oxygen by face mask or nasal prongs or oxy-hood</li> <li>• Monitoring by Medical doctor with a remote on-call Pediatrician / Internal medicine specialist</li> </ul>
<b>DCH</b>	<ul style="list-style-type: none"> <li>• Oxygen requirement <math>&gt; 5</math> L/min and/or unstable vitals</li> <li>• Requisite backup (Lab, Radiology, Blood bank services etc) to maintain 24X7 ICU Care</li> <li>• High flow oxygen: Non rebreathing masks, High flow nasal cannula</li> <li>• Non invasive ventilation: Bubble CPAP, BiPAP</li> <li>• Mechanical Ventilation,</li> <li>• Monitoring under supervision of Pediatrician/ Intensivists / Internal medicine specialist with Pediatrician on call.</li> </ul>



### **Provisions to allow parent/ family member to stay with the child**

These facilities should have provision for the stay of a parent/ care-giver with the child. This could be an adult family member who also has mild COVID/ asymptomatic infection, or one who has previously recovered from COVID. In case the caregiver is COVID negative, he/she still may be allowed to be with the child, after due counselling, appropriate consent, and providing them with appropriate PPE (esp. a good fitting N95/ FFP2 mask).

### **Augmentation of existing pediatric care facilities to provide care to children with MIS-C**

MIS-C is a severe post-COVID-19 inflammatory disorder in children which is frequently associated with complications such as cardiac dysfunction, coronary aneurysms, thrombosis, and multi-organ dysfunction etc. MIS-C cases tend to peak 2-6 weeks following the peak of COVID-19 cases in the community. MIS-C should be suspected in children with persistent fever beyond 3 days with clinical manifestations (Rash, bilateral non-purulent conjunctivitis, diarrhoea, vomiting, or abdominal pain, bleeding, respiratory distress, shock), especially if child had contact with COVID-19 patient in past 1-2 months or had acute covid infection. These features should be included in IMNCI fever algorithms for early suspicion of MIS-C in community and first referral. If MIS-C is clinically suspected, children should be referred to centres capable of providing intensive care support (mechanical ventilation, shock management, facilities for echocardiography, as needed). Management involves supportive care, organ support and immunomodulation (steroids-first line).

Clinical definition of MIS-C, evaluation and treatment protocols have been published ([https://www.mohfw.gov.in/pdf/ProtocolforManagementofCovid19inthePaediatricAgeGroup.p df](https://www.mohfw.gov.in/pdf/ProtocolforManagementofCovid19inthePaediatricAgeGroup.pdf))

Many of these children, who are PCR/ CBNAAT negative, will be cared for in the pediatric facilities. The HDU/ ICU facilities will need augmentation for the same. The mainstay of management of children with MIS-C are steroids (iv methylprednisolone) and IVIG.

### **Augmenting bed capacity for pediatric care in urban, peri urban and rural area**

2. The existing covid facilities should be augmented in phased manner if needed.
3. Standalone pediatric hospitals should create areas dedicated for pediatric covid care.
4. For managing MIS-C, the existing pediatric facilities within various hospitals need strengthening for HDU/ ICU care.
5. If the surge is excessive and the capacity of covid facilities is overwhelmed, then use of general beds/ wards/ ICUs in hospitals may be considered.

### **COVID CONTROL ROOM**

This is also to flag here that any strengthening in the facility will only be able to respond adequately if it is properly linked with community-based home care. Lesson from the present pandemic has clearly indicated reactions by the public, rushing to the facilities, seeking care

for the cases which could have been well managed at home and this may have resulted in denial of certain services for those who actually needed the admission. It is therefore also proposed that every district should have a COVID control room under the guidance of paediatrician and physician so that focus on adequate IEC, reassurance for community and home-based management particularly for mild cases is properly disseminated and assured to the people.

### **Training**

Capacity building of HR on surveillance, infection prevention and control, clinical management and risk communication should be ensured. A combination of online training with virtual interactions, and supplemented by in-person training (Hybrid) may be developed for optimal capacity building. The regional centers should supervise the medical colleges and each of the medical colleges could support/ mentor 2-4 district hospitals; appropriate linkages for the same shall be developed.

Both the doctors and nurses posted in emergency, HDU/ICU, paediatric wards should be trained in routine and critical paediatric care.

### **Equipment**

Medical equipment plays a significant role in patient care in COVID Hospitals. All the necessary equipment to provide clinical, support and other services should be ensured.

### **Infection Prevention & Control**

Since COVID-19 infection is highly infectious, every hospital handling such patients is expected to put robust infection prevention control protocol in place.

### **Disposal of the deceased**

While the outcomes in pediatric covid are good, deaths may occur occasionally. Dead body disposal for children dying due to COVID-19 should be streamlined; the principles are same as that for adults.

### **Discharge criteria**

For children admitted in a facility, the criteria for discharge are same as that for adults [<https://www.mohfw.gov.in/pdf/ReviseddischargePolicyforCOVID19.pdf>]

### **Post COVID-19 care**

Children who have suffered from severe COVID-19 infection especially those who have needed invasive ventilation will need enhanced care on follow up.

The following are recommended for discharge and post discharge care of children who have suffered severe COVID-19

1. Advice about how the saturation should be monitored
2. Advice about warning signs which include development of fever, persistent drop in oxygen saturation, increased cough or breathlessness, chest pain, headache/ jaw pain/ tooth pain/ nasal blockage.
3. Emergency contact number .



4. Influenza and pneumococcal vaccination may be considered

#### **Care of neonates born to COVID-19 positive mothers**

Up to 10% of neonates born to COVID-19 positive mothers may be RT-PCR positive for SARS-CoV-2 during birth hospitalization. Majority of these neonates remain asymptomatic. Occasionally, moderate to severe infections with oxygen requirement can occur. A significant proportion of neonates may however require special or intensive care due to prematurity and perinatal complications. Breastfeeding, rooming-in, kangaroo mother care (when required) should be encouraged in all cases. Therefore, the pediatric facility should have equipment and surgical consumables suitable for neonates including preterms. Routine immunization should be done for stable neonates..

#### **Neonates with Late-onset Covid-19 disease**

During the second wave, an increasing number of neonates with moderate to severe Covid-19 pneumonia and gastrointestinal symptoms have been seen. These neonates typically acquire the infection at home from other family members. Occasional cases of MIS related to COVID antibodies transmitted from the mother have also been seen. The pediatric HDU/ ICU should have suitable equipment and surgical items for care of these neonates e.g.,servo- controlled open care systems, air-oxygen blending systems, CPAP, ventilators capable of supporting preterms and appropriate sized nasal interfaces and endotracheal tubes.

### **Caring for infants and mothers with COVID-19: IPC and breastfeeding**

Relatively few cases have been reported of infants confirmed with COVID-19; those that have been reported experienced mild illness. No vertical transmission has been documented. Amniotic fluid from six mothers positive for COVID-19 and cord blood and throat swabs from their neonates who were delivered by caesarean section all tested negative for the COVID-19 virus by RT-PCR. Breastmilk samples from the mothers after the first lactation were also all negative for the COVID-19 virus.

Breastfeeding protects against morbidity and death in the post-neonatal period and throughout infancy and childhood. The protective effect is particularly strong against infectious diseases that are prevented through both direct transfer of antibodies and other anti-infective factors and long-lasting transfer of immunological competence and memory.

(<https://apps.who.int/iris/bitstream/handle/10665/107481/e79227.pdf>). Therefore, standard infant feeding guidelines should be followed with appropriate precautions for IPC.

**Infants born to mothers with suspected, probable, or confirmed COVID-19 should be fed according to standard infant feeding guidelines, while applying necessary precautions for IPC.**

- Breastfeeding should be initiated within 1 hour of birth. Exclusive breastfeeding should continue for 6 months with timely introduction of adequate, safe and properly fed complementary foods at age 6 months, while continuing breastfeeding up to 2 years of age or beyond. Because there is a dose-response effect, in that earlier initiation of breastfeeding results in greater benefits, mothers who are not able to initiate breastfeeding during the first hour after delivery should still be supported to breastfeed as soon as they are able. This may be relevant to mothers who deliver by caesarean section, after an anaesthetic, or those who have medical instability that precludes initiation of breastfeeding within the first hour after birth.
  - As with all confirmed or suspected COVID-19 cases, symptomatic mothers who are breastfeeding or practising skin-to-skin contact or kangaroo mother care should practise respiratory hygiene, including during feeding (for example, use of a medical mask when near a child if the mother has respiratory symptoms), perform hand hygiene before and after contact



with the child, and routinely clean and disinfect surfaces with which the symptomatic mother has been in contact.

- Breastfeeding counselling, basic psychosocial support, and practical feeding support should be provided to all pregnant women and mothers with infants and young children, whether they or their infants and young children have suspected or confirmed COVID-19. All mothers should receive practical support to enable them to initiate and establish breastfeeding and manage common breastfeeding difficulties, including IPC measures. This support should be provided by appropriately trained health care professionals and community-based lay and peer breastfeeding counsellors.
- In situations when severe illness in a mother with COVID-19 or other complications prevents her from caring for her infant or prevents her from continuing direct breastfeeding, mothers should be encouraged and supported to express milk, and safely provide breastmilk to the infant, while applying appropriate IPC measures. There should be no promotion of breastmilk substitutes, feeding bottles and teats, pacifiers or dummies in any part of facilities providing maternity and newborn services, or by any of the staff. Health facilities and their staff should not give feeding bottles and teats or other products.
- Mothers and infants should be enabled to remain together and practise skin- to-skin contact, kangaroo mother care and to remain together and to practise rooming-in throughout the day and night, especially immediately after birth during establishment of breastfeeding, whether they or their infants have suspected, probable, or confirmed COVID-19.
- Parents and caregivers who may need to be separated from their children, and children who may need to be separated from their primary caregivers, should have access to appropriately trained health or non-health workers for mental health and psychosocial support.

The following types of clinical areas are required for the care of neonates (Table 5):

### Requirements for various scenarios for new born care

S No.	Type of facility	Type of care	Location	Remarks
1.	Newborn Care Corners	Resuscitation facilities	Next to or within each delivery area for suspect and confirmed Covid-19 pregnant women	Special attention required for ensuring thermoregulation and availability of blended air-oxygen



2.	Special Care Newborn Unit/Neonatal intensive care Unit for care of 'suspect' neonates	Special or intensive care for prematurity or other perinatal illnesses.	Ideally should be located close to the delivery area. Can be part in pediatric COVID care zone suspect ward, or as a standalone unit, or carved out of existing SNCU/NICU with separate entry/exit and donning/doffing facilities.	Special attention required for ensuring thermoregulation and appropriate equipment. As majority of neonates born to Covid-19 mothers will turn out to be negative and will need to stay in the area for 5-6 days before they can be confidently declared negative for SARS-Cov-2, this area will need the largest proportion of neonatal beds, staff and equipment
3.	Special Care Newborn unit /Neonatal intensive care unit for care of 'confirmed' neonates	Special or intensive care for prematurity or other perinatal illnesses or early onset Covid-19 disease	Part of pediatric COVID confirmed area	As the number of such cases is going to be small, it will be more efficient to locate them within the pediatric COVID facility.
4.	Postnatal COVID ward /rooms for mother-baby dyads	Rooming-in of stable babies with suspect or confirmed Covid- 19 mothers	Part of obstetric postnatal wards/rooms for 'suspect' or 'confirmed' Covid-19 mothers.	Equipment and staff for monitoring and essential neonatal care will be required. (thermoregulation, lactation and KMC support, monitoring for blood glucose, jaundice and phototherapy

5.	Well-baby COVID area	Rooming-in of stable neonates with family caregivers in case of non-availability of mother.	An area under pediatrics will have to be marked for this. If such a facility cannot be created, these babies may be accommodated in the SNCU for 'suspect' cases (item no.2) until fit for discharge	Family members may also be positive or not available for baby care. In such cases, the babies can be accommodated in the SNCU for 'suspect' cases.
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It will be more efficient and beneficial for patients as well as care providers, if the obstetric and delivery areas for suspect and Covid-19 pregnant women are located along with neonatal and pediatric areas.

#### Vaccination in Children:

At present the programme involves vaccination of people from the age of 18 years and above. No vaccine is approved in India for use in children below the age of 18 years. At a time when some experts have raised concerns of a third wave of Covid-19 in India affecting children the most, the Drugs Controller General of India gave permission for conducting **Phase II/III trials of Bharat Biotech's Covaxin** in the 2-18 age group. Many more vaccines approved for Pediatrics use in abroad are on pipeline to introduced in India. Once available / approved further SOP will be issued. Till that time vaccination of parents family members and peoples coming in contact to children in school & transport environments may be helpful for protection of the child indirectly through herd immunity and / or herd.



**Appendix 1:** Checklists for surveillance and monitoring by ANM/ASHA

**Physical Triage Checklist – Surveillance in Children**

(To be used by ASHA/MPW-M or F/Community Health Worker/Community Volunteer)

**1. Demographics**

- a. Name: .....
- b. Age: ..... 0-2 months  2- 12 months  1-5 years  >5-9 years  
 10-14 years  15-18 years
- c. Sex: .....

RT-PCR/RAT status with date \_\_\_\_\_

**2. Symptoms (Please consult CHO/MO if any one of the following symptoms is present):**

Symptom	No. of Days since onset of symptom	Symptom	No. of Days since onset of symptom
Fever <input type="checkbox"/>		Fatigue <input type="checkbox"/>	
Cough <input type="checkbox"/>		Body ache <input type="checkbox"/>	
Shortness of breath <input type="checkbox"/>		Loss of smell <input type="checkbox"/>	
Loss of taste <input type="checkbox"/>		Headache <input type="checkbox"/>	
Runny/blocked nose <input type="checkbox"/>		Vomiting <input type="checkbox"/>	
Sore throat <input type="checkbox"/>		Rash <input type="checkbox"/>	
Blood in sputum <input type="checkbox"/>		Confused status <input type="checkbox"/>	
Redness of eye, lips <input type="checkbox"/>		Loose stools <input type="checkbox"/>	
Abdominal pain <input type="checkbox"/>		Chest pain <input type="checkbox"/>	

**3. Co-morbidities (if already known):**

Diabetes Mellitus Type 1 <input type="checkbox"/>	Chronic Liver disease <input type="checkbox"/>
Hypertension <input type="checkbox"/>	Congenital Heart Disease <input type="checkbox"/>
Cardiac disease <input type="checkbox"/>	Cancer <input type="checkbox"/>
Respiratory illness <input type="checkbox"/>	On steroid/chemotherapy <input type="checkbox"/>
Chronic kidney disease <input type="checkbox"/>	Regular dialysis? <input type="checkbox"/>
Psychiatric illness <input type="checkbox"/>	Obesity <input type="checkbox"/>
Chronic arthritis <input type="checkbox"/>	Severe malnutrition <input type="checkbox"/>
Neurological disorders <input type="checkbox"/>	

**4. List of current medications:**

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

5. Examination (Please consult CHO/MO if any one of the following signs is present):

S. No.	Parameter	Response	Action required- Consult CHO/MO in case of the following finding
1	Mental status	Conscious, oriented <input type="checkbox"/> Altered sensorium <input type="checkbox"/>	Altered sensorium
2	Respiratory rate (RR) (count/min)	...../min	If more than ≥60/min for 0-2 months ≥ 50/min for 2-12 months, ≥ 40/min for 1-5 years ≥ 30/min for >5years
3	Oxygen saturation	.....%	below 94%

1. Eligibility criteria for home isolation (Please tick the response)

A.	Is respiratory rate < age specific cutoff	Yes	No
B.	Is room air SpO <sub>2</sub> ≥ 94%	Yes	No
C.	Absence of ALL of the following high-risk features <ul style="list-style-type: none"> <li>● Cardiovascular disease including hypertension</li> <li>● Diabetes</li> <li>● Immunocompromised states</li> <li>● Chronic lung disease</li> <li>● Chronic kidney disease</li> <li>● Chronic liver disease</li> <li>● Cancer</li> <li>● Transfusion dependent thalassemia/hemophilia</li> <li>● Cerebrovascular disease</li> <li>● Obesity (BMI &gt; 2SD)</li> <li>● Severe malnutrition</li> </ul>	Yes	No

2. Social eligibility criteria for home isolation (Please tick the response)

A	The patient has a requisite facility for isolation at his/her residence and also for quarantining the family contacts	Yes	No
B	Caregiver is available to provide care on a 24X7 basis	Yes	No
C	The parents/caregiver has agreed to monitor health of the child and regularly inform his/her health status to the Surveillance Officer/ doctor	Yes	No
D	The parents/ caregiver have filled an undertaking on self-isolation and shall follow home isolation/quarantine guidelines	Yes	No



**Red flag signs:**

S. No.	Parameters	When to refer (Danger Signs)
1	Fever	>100.4 F for more than 3 days
2	SpO <sub>2</sub>	below 94 %
3	Bluish discolouration of body	Refer if Yes
4	Respiratory rate	If more than ≥60/min for 0-2 months ≥ 50/min for 2-12 months, ≥ 40/min for 1-5 years ≥ 30/min for >5years
5	Chest indrawing	Refer if Yes
6	Skin rashes	Refer if Yes
7	Redness or swelling of lips and tongue	Refer if Yes
8	Redness and swelling of hands and feet	Refer if Yes
9	Oral Intake	Refer if reduced
10	Lethargic	Refer if Yes
11	Urine output (at least 6 times/day for newborn)	Refer if Reduced
12	Cold extremities (check in newborn)	Refer if Yes

**Govt. of Odisha, Health & FW Department.**  
**Advise to the Parents of mild/ asymptomatic Covid 19**  
**children on home isolation:**

1. To follow strict isolation of the Covid 19 children from other healthy childrens , elderly persons and persons with comorbidity in the community.
2. Do not send the child to school, social functions and religious places.
3. Encourage the child and other family members to follow Covid 19 appropriate behavior, i.e. use of masks, social distancing, hand washing and use of sanitizers.
4. The child should be counseled to report any discomfort as soon as possible.
5. Consult nearest Health care workers on the events of any doubt or deterioration of health conditions.
6. **Watch for Symptoms**

Children with COVID-19 may have a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. Anyone can have mild to severe symptoms.

- Fever or chills
- Cough
- Shortness of breath or difficulty breathing, blue colouration of body
- Fatigue, lethargy
- Muscle or body aches
- Headache
- New loss of taste or smell
- Sore throat, Painful ulcers in mouth
- Congestion or runny nose
- Nausea or vomiting
- Somnolence,
- Diarrhea
- Monitor SpO2

This list does not include all possible symptoms.

**When to Seek Emergency Medical Attention:** Look for emergency warning signs\* for COVID-19. If someone is showing any of these signs, **seek emergency medical care immediately:**

- Trouble breathing
- Chest indrawing
- Nasal flare
- Reduced Urine output
- Persistent pain or pressure in the chest
- New confusion
- Inability to wake or stay awake
- Pale, gray, or blue-colored skin, lips, or nail beds, depending on skin tone

Whom to contact in case of emergency or doubt:

Phone Number:



