STATE AYURVEDA COVID-19 RESPONSE CELL, DEPARTMENT OF AYUSH, GOVERNMENT OF KERALA

THE EVALUATION REPORT ON BHESHAJAM

Ayurvedic treatment programme for uncomplicated COVID-19 patients

1 DEC 2020 to 15 JAN 2021

SAVE

SMS, Ayush, Vaccination, Exercise and Healthy Lifestyle

കരുതലോടെ കേരളം

കരുത്തേകാൻ ആയുർവേദം

STATE AYURVEDA COVID-19 RESPONSE CELL

THE EVALUATION REPORT ON BHESHAJAM

Ayurvedic treatment programme for
uncomplicated COVID-19 patients
(CATEGORY-A)

01 DEC 2020 to 15 JAN 2021

SUBMITTED ON
25 MAY 2021

IMPLEMENTED BY
DEPARTMENT OF INDIAN SYSTEMS OF MEDICINE
AND
NATIONAL AYUSH MISSION
DEPARTMENT OF AYUSH,GOVERNMENT OF KERALA

INTRODUCTION

The department of AYUSH, Government of Kerala, had extended the approved Ayurvedic strategies for the prevention, mitigation and rehabilitation of COVID-19 in Kerala to uncomplicated COVID-19 patients (category A) under isolation at their home or designated COVID-19 care centers (*GO(Rt) No.425/2020/AYUSH; dated, Thiruvananthapuram, 18.11.2020)*. On 30 November 2020, the State Ayurveda COVID-19 Response Cell (SACRC) had designated the project as *Bheshajam* and released a guideline for the smooth implementation of the Ayurvedic Treatment Strategies (ATS) for COVID-19 patients. The guidelines outlined roles and responsibilities at various levels, along with Ayurvedic pharmacological and non-pharmacological interventions, and included case record forms (CRF) for valid data collection, recording, and future evaluation.

The Bheshajam project was implemented across the state on 1 December 2020 with the active participation of the Department of Ayurveda Medical Education, Department of Indian Systems of Medicine and National AYUSH Mission. The government has implemented the project through the Ayur Raksha Clinics *(ARC)* and Ayur Raksha Task Force *(ARTF)* with massive support from the Local Self Governance *(LSG)* bodies *(1206 ARC are presently working across the state covering almost all the grama panchayats)*. The present report is a comprehensive evaluation of the ongoing Bheshajam project in the state.

METHODOLOGY

The Ayurvedic Treatment Strategy under Bheshajam mainly included the National Clinical Management Protocol for COVID-19 based on Ayurveda and Yoga *(NCP-AY),* and the approved Essential Drug List devised by the State Ayurveda Covid-19 Response Cell *(SACRC).* Medical officers of the ARC had the liberty to prescribe medicines from the Bheshajam protocol *(Annexed)* with similar indications after considering the Prakriti *(constitutional aspects)* of the Covid patients and associated clinical conditions. The ATS was executed by the ARC's through the ARTF under the keen supervision of the concerned medical officer of the ARC, and they collected the Informed consent regarding the acceptance of APS through electronic means The ARCs provided telephonic guidance to isolated patients who consented to ATS. This included instructions on medicine consumption, daily activities, and dietary practices. The data were collected using the pre-structured case record form *(CRF)* devised by the SACRC. Daily monitoring regarding the consumption of the APS, the individual's health status, and the development of symptoms during the period were closely monitored and recorded at the ARC's through ARTF.

The criteria identified for defining compliance to the ayurvedic treatment under Bheshajam were as follows;

1. An uncomplicated COVID-19 patient (symptomatic/asymptomatic) should have necessarily completed an continuous ATS regimen for a minimum period of three days.
2. An uncomplicated COVID-19 patient (symptomatic/asymptomatic) should have completed the minimum period of ATS within seven days of either the positive COVID-19 test (swab collection day) or the development of symptoms, whichever occurred first.

The state cell prepared pre-structured google forms for the data collection and delivered necessary instructions regarding collecting and consolidating the data through video tutorials. The data from the ARC were collected, verified and consolidated by the district research team and forwarded to SACRC, where they have conducted the evaluation. The present report, based on the preliminary evaluation of the data, primarily consists of the following;

1. The socio-demographic details, comorbidity patterns, and other relevant aspects of uncomplicated COVID-19 patients who received ayurvedic treatment under the Bheshajam programme from 1 December 2020 to 15 January 2021.
2. Evaluation of the clinical course and clinical outcome of the uncomplicated COVID-19 patients under Bheshajam from 1 December 2020 to 15 January 2021.
3. Assessment of recent coverage and reported death among the COVID-19 patients treated under the Bheshajam from 1 December 2020 to 20 May 2021

RESULTS

The major results identified on the scientific analysis of the observed Bheshajam data are being summarized here. The observations that have helped in arriving at these inferences have been presented in the subsequent sections of this report.

1. The state-wide coverage of ayurvedic treatment for uncomplicated COVID-19 was steadily rising from 15 April 2020 to 20 May 2021. Data showed that at least 22% of the newly reported cases reached the Bheshajam programme on 20 May 2021, indicating the increased reach of Ayurvedic treatment for COVID-19 among the Kerala population.
2. The number of deaths reported due to aggravated illness among the patients who received ayurvedic treatment under Bheshajam was 53 from 1 December 2020 to 20 May 2021 (0.03%); while the reported CFR of the state was 0.3% on the same day.
3. Of the 9855 covid patients studied under Bheshajam, 53.22% (5245) were females, contrary to the earlier observation of male predominance in COVID-19 cases.
4. Among the 1332 COVID-19 patients with comorbidities, 60% (675) had diabetes mellitus, 50% (573) had hypertension, and 14% (186) had both.
5. The most reported symptoms included fever (31.03%), cough (20.91%), headache (18.37%), sore throat (16.91%), and loss of smell (16.54%). However, 38.69% of the patients were asymptomatic.

6. Out of the 9855 COVID-19 patients, 9448 (95.87%) treated under Bheshajam reported having a complete recovery without any persistent symptoms or post-COVID complications. Only 4% (395) had persistent symptoms or post-COVID ailments despite being tested negative for SARS-CoV-2 infection as observed during the evaluation period from 1 December 2020 to 15 January 2021.
7. Of the 9855 COVID-19 patients, 44 (0.45%) required referral to higher centers, including 35 who needed intensive care (0.36%). Of these, four were ventilated, and two ultimately succumbed - one due to pneumonia and the other to respiratory failure.

LIMITATIONS

The results and the inferences arrived at has to be comprehended in the light of the limitations being stated below.

1. Rather than being an elaborate systematic research initiative, the current report is a summary of systematically collected data of an ongoing public health programme. Hence the necessary scientific rigor may be found wanting here.
2. The data showed uncertainty regarding the final status of 43 patients under Bheshajam during the evaluation period, creating uncertainty in the reported death and referral percentages.
3. The ambiguity in compliance of 98 patients under Bheshajam to ayurvedic medicines made it difficult to assess the dose-response effect of the regimen on the disease outcomes of Covid patients.
4. The existing shortcomings in the public health mechanism of Ayurveda in terms of the required human resources and solid organizational framework in place for the evidence-based execution of various public health programmes might have had a dampening impact on the overall scientific evaluation of Bheshajam.
5. Although the data regarding the COVID-19 patients under Bheshajam presented here are authentic and reliable, owing to potential recall bias, the data regarding the COVID-19 course in the observed population may be incomplete.

RECOMMENDATIONS

The following recommendations are being made based on the findings as well as identified limitations.

1. The Ayush department may actively consider starting COVID-19 treatment centers offering standalone ayurvedic treatment for the patients, which could help verify the community-level observations of Ayurvedic medicines in managing the pandemic within a more controlled setting.
2. On the basis of the findings and inferences from the current study, it is recommended that further rigorous epidemiological research using 'gold standard methods' should be undertaken to further explore community level interventions of Ayurveda in the COVID-19 scenario.
3. The findings of the report necessarily warrant multicentric trials to assess the effectiveness of Ayurvedic therapeutic strategies in pre and post exposure prophylaxis of SARC-CoV-2 infection.
4. The Ayurvedic medicines are generally differentially processed polyherbal combinations containing multitude of phytoconstituents of diverse biological potentials. The bioactivities of the drugs included in the Ayurvedic Prophylactic Strategies under *Amritham* should be further explored to develop potential natural products with immunomodulatory and antiviral properties.
5. The public health framework for Ayurveda delivery in Kerala should be strengthened by integrating data collection and management systems. This will ensure effective delivery of Ayurveda during public health emergencies and also will ensure evidence-based researches in the field.

CONCLUSION

The reach and acceptance of Ayurvedic interventions during the COVID-19 pandemic among the Kerala population have steadily increased since their incorporation into the state's mainstream mitigation efforts, with the Bheshajam programme being no exception. Over 2.5 million individuals have accessed various Ayurvedic programmes for preventive, curative, and convalescent care during the pandemic.

Previous reports from the quarantine care programme *Amritham* and the post-COVID care programme *Punarjani* have highlighted the safety of Ayurvedic medicines, with minimal adverse drug reactions and encouraging preliminary results in community settings. Similarly, the Bheshajam programme, which targeted uncomplicated COVID-19 cases, has shown promising outcomes. These findings underscore the need for rigorous investigations of the medicines used in Bheshajam through controlled experimental studies.

As the pandemic continues to evolve, with mutations altering its clinical course, complications such as mucormycosis emerging, and younger populations being disproportionately affected, supportive therapies that enhance natural immunity and resilience remain critical.

Thus, the government is encouraged to adopt an integrative healthcare approach, effectively leveraging Ayurvedic formulations to promote bodily strength and vitality alongside conventional medicine, in Kerala's fight against the pandemic.

COVERAGE OF VARIOUS AYURVEDIC PROGRAMMES FOR COVID-19

Data as on 24 May 2020

Programme	Details	Policy document	Number of beneficiaries
Swasthyam	APS* for general population below 60 years	**G.O.(Rt)No.156/2020/AYUSH** Dated, Thiruvananthapuram, 08/04/2020	**9,37,380**
Sukhayushyam	APS for general population above 60 years	**G.O.(Rt)No.156/2020/AYUSH** Dated, Thiruvananthapuram, 08/04/2020	**6,26,674**
Amritham	APS for COVID-19 quarantined individuals	***G.O.(Rt) No.180/2020/AYUSH;*** *dated, Thiruvananthapuram, 15.05.2020*	**8,09,756**
Bheshajam	ATS# for uncomplicated COVID-19 cases (Category A)	***G.O(Rt) No. 425/2020/AYUSH*** *dated, Thiruvananthapuram, 18/11/2020*	**1,71,920**
Punarjani	ATS for covid convalescent care	**G.O.(Rt)No.156/2020/AYUSH** Dated, Thiruvananthapuram, 08/04/2020	**1,36,476**

RECENT STATUS OF THE BHESHAJAM PROGRAMME

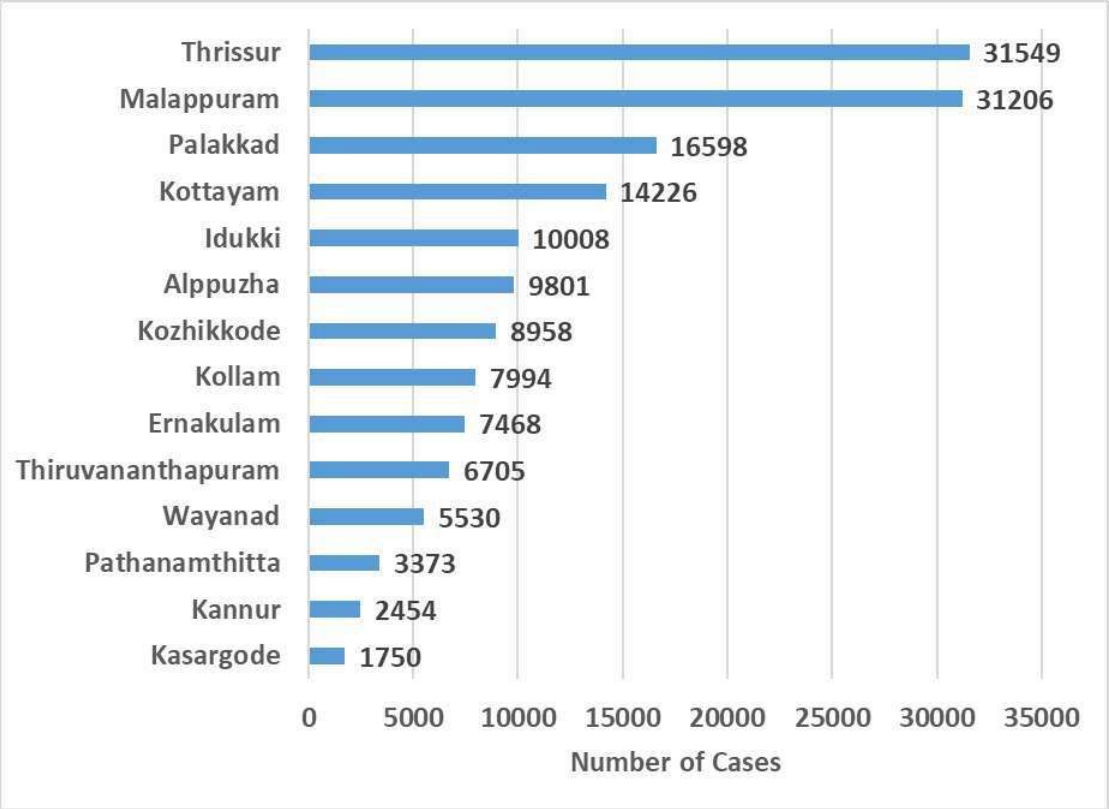

Figure 1: District-wise distribution of uncomplicated COVID-19 cases managed under Bheshajam from 1 December 2020 to 20 May 2021

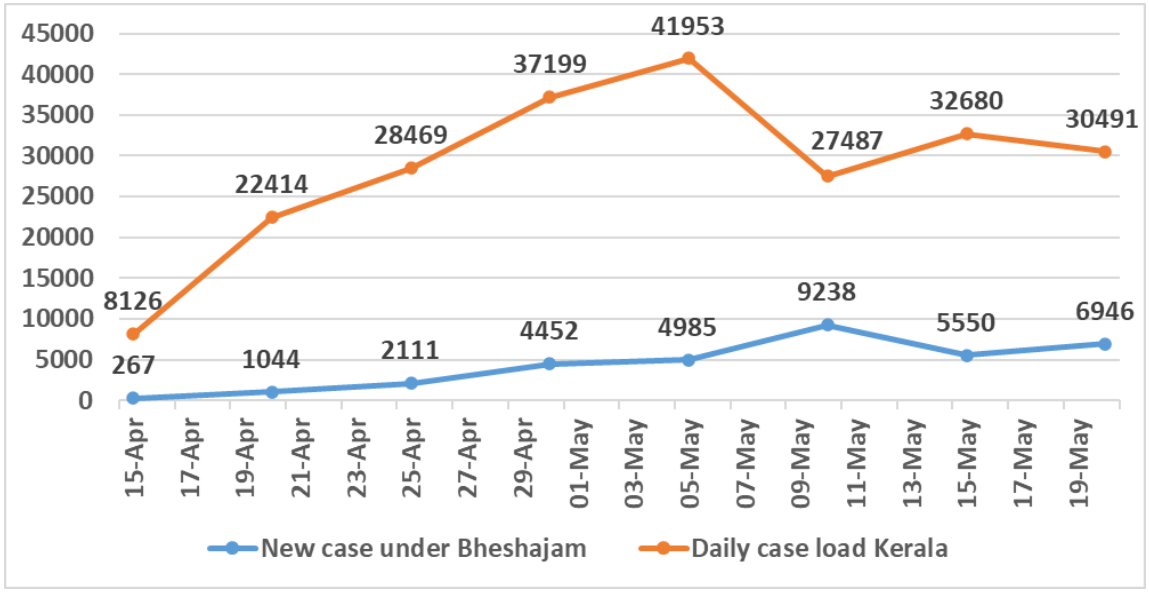

Figure 2: Daily new Covid cases reported under Bheshajam compared with newly reported Covid cases in Kerala from 15 April 2021 to 20 May 2021

Figure 1 illustrates the district-wise coverage of the Bheshajam programme from 1 December 2020 to 20 May 2021. Thrissur (31,549 cases), Malappuram (31,206 cases), and Palakkad (16,598 cases) collectively accounted for 50% of the reported 1,57,629 uncomplicated COVID-19 cases managed under Bheshajam in Kerala. In contrast, Kannur and Kasaragod districts reported the least coverage, with 2,454 and 1,750 cases, respectively, during this period.

Figure 2 compares the trend of new cases enrolled in Bheshajam with the daily newly reported COVID-19 cases in Kerala from 15 April 2021 to 20 May 2021. The maximum number of COVID-19 cases enrolled in Bheshajam on a single day was 9,238, recorded on 15 May 2021.

The percentage of COVID-19 patients accessing Bheshajam steadily increased from 15 April to 20 May 2021, reaching 22.8% of the newly reported cases in Kerala on 20 May 2021 (**Figure 3**).

A total of 53 deaths due to aggravated illness from COVID-19 were reported among patients treated under Bheshajam, resulting in a Case Fatality Rate (CFR) of 0.03%. In comparison, the overall CFR for the state on the same date was 0.3%

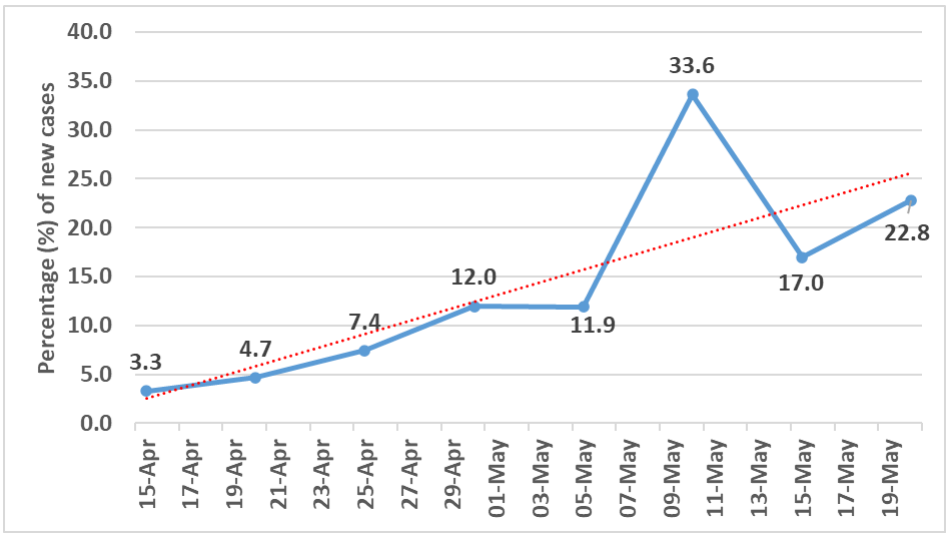

Figure 3: Percentage of newly reported Covid cases from Kerala managed under Bheshajam

BHESHAJAM FROM 1 DECEMBER 2020 TO 15 JANUARY 2021

General aspects

Table 1 displays the district-wise distribution of COVID-19 patients treated using Ayurveda under the Bheshajam programme from 1 December 2020 to 15 January 2021. Malappuram district (1,947 cases), followed by Thrissur (1,544 cases), accounted for over 30% of the 9,855 cases treated under Bheshajam during this period. In contrast, the number of cases reported from Kannur (5) and Kasaragod (35) was significantly lower compared to other districts.

Table 1: District-wise Covid cases treated under Bheshajam from 1 December 2020 to 15 January 2021 (n=9855)

District	Number of Reported Cases	Percentage Contribution (%)
Kannur	5	0.05
Kasaragod	35	0.36
Kollam	269	2.73
Palakkad	322	3.27
Pathanamthitta	403	4.09
Wayanad	549	5.57
Ernakulam	706	7.16
Kozhikode	747	7.58
Idukki	800	8.12
Alappuzha	803	8.15
Thiruvananthapuram	803	8.15
Kottayam	922	9.36
Thrissur	1544	15.67
Malappuram	1947	19.76
Total	**9855**	**100.00**

Table 2: Age distribution of Covid patients treated under Bheshajam from 1 December 2020 to 15 January 2021 (n=9855)

Age category (years)	Number of Patients	Percentage (%)
≤4	228	2.31
5 to 14	823	8.35
15 to 24	1462	14.84
25 to 34	1843	18.70
35 to 44	1906	19.34
45 to 54	1796	18.22
55 to 64	1132	11.49
65 to 74	479	4.86
75 to 84	162	1.64
85≥	24	0.24
Total	**9855**	**100.00**

Over 50% of the uncomplicated COVID-19 patients treated under Bheshajam from 1 December 2020 to 15 January 2021 with Ayurvedic Medicines were between the age of 25 to 54 years. About 18% were 55 or more years of age, and the rest had only 25 years or less (**Table 2**). Among the 9,855 patients, 53.22% (5,245) were female, contrasting with earlier reports of male predominance in COVID-19 cases. Males accounted for 46.76% (4,608), and two patients identified as LGBTQ+ (**Table 3**).

Comorbidities were reported in 13.52% (1,332) of the patients. Smoking was the most common habit/addiction among 85 patients, followed by alcohol use (70), with 22 patients addicted to both. Among the Covid patients, 80 were lactating mothers, and 30 were pregnant. Regarding treatment modalities, 1,138 patients received Ayurvedic medicines as an add-on to conventional treatments provided by public health services, while the rest received standalone Ayurvedic treatment Bheshajam was implemented in only a small number of CFLTCs/CSLTCs/DCCs, resulting in just 4% of the total treated patients under Bheshajam being from these centers.

Table 3: Socio-demographic and isolation characteristics of Covid patients treated under Bheshajam (n=9855) from 1 December 2020 to 15 January 2021

Details	Number	Percentage (%)
Gender		
Male	4608	46.76
Female	5245	53.22
LGBTQ	2	<1
Comorbidity status		
With comorbidity	1332	13.52
Without comorbidity	8523	86.45
Habits/Addictions		
Alcohol	70	<1
Smoking	85	<1
Smoking; Alcohol	22	<1
Tobacco use	3	<1
Special category		
Lactating	80	<1
Pregnant	30	<1
Use of ayurvedic medicine		
Add on	1138	11.55
Stand alone	8717	88.45
COVID-19 care		
CFLTC/CSLTC/DCC	387	3.93
Home isolation	9468	96.07

Comorbidities

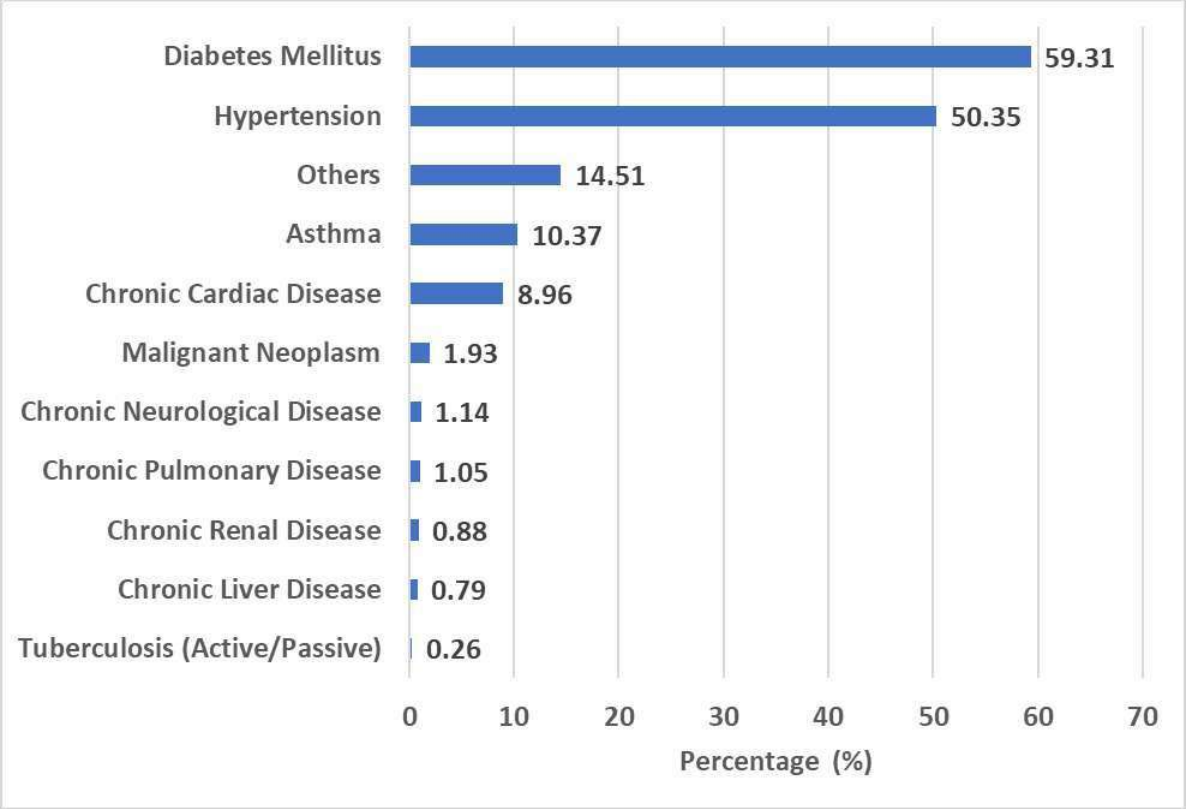

Figure 4: Percentage distribution of comorbidities among Covid patients treated under Bheshajam (n=1,332)

Although Category A COVID-19 patients were the primary target for Ayurvedic treatment under Bheshajam, many patients with comorbidities in home isolation expressed their willingness to opt for Ayurvedic care. Among these, diabetes mellitus emerged as the most common comorbidity, affecting 60% (675) of the 1,332 patients with comorbidities. Hypertension was reported in 50% (573) of the patients, and both diabetes and hypertension coexisted in 186 patients. Other notable comorbidities included asthma (10.37%, 118 patients) and chronic cardiac diseases (8.9%, 102 patients). Thyroid dysfunction, categorized under "others," was significant, affecting 66 patients. (**Figure 4**).

COVID-19 Symptoms

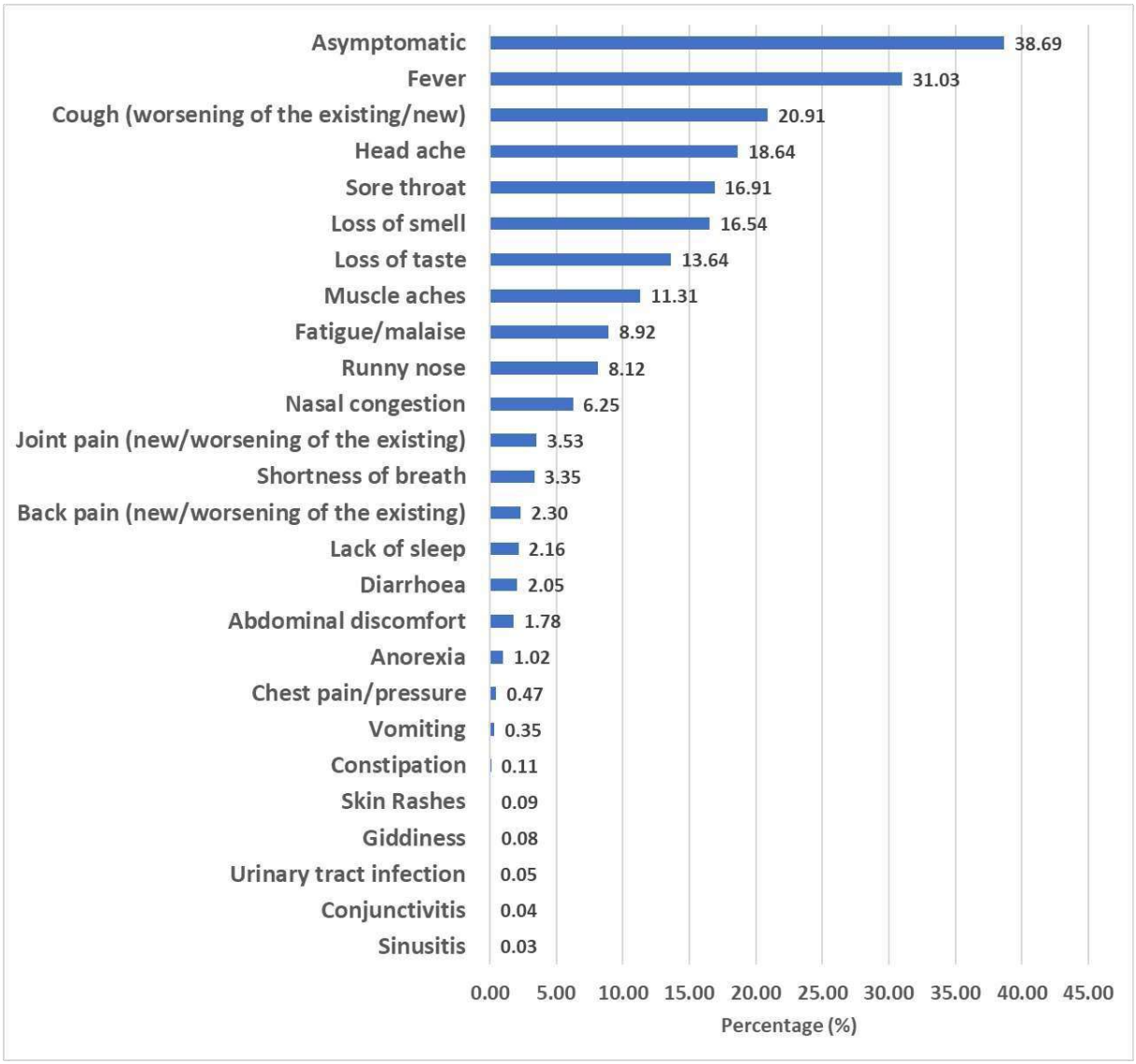

Figure 5: Symptom distribution in COVID-19 patients treated under Bheshajam (n=9855) from 1 December 2020 to 15 January 2021.

Of the 9,855 uncomplicated COVID-19 patients treated under Bheshajam during this period, 38.69% (3,813) were asymptomatic until they tested negative. The most frequently reported symptoms included fever (3,058, 31.03%), cough (2,061, 20.91%), headache (1,837, 18.37%), sore throat (1,666, 16.91%), and loss of smell (1,630, 16.54%). Other less common symptoms, such as skin rashes, vomiting, conjunctivitis, urinary tract infections, and sinusitis, were also reported but in smaller percentages (**Figure 5**).

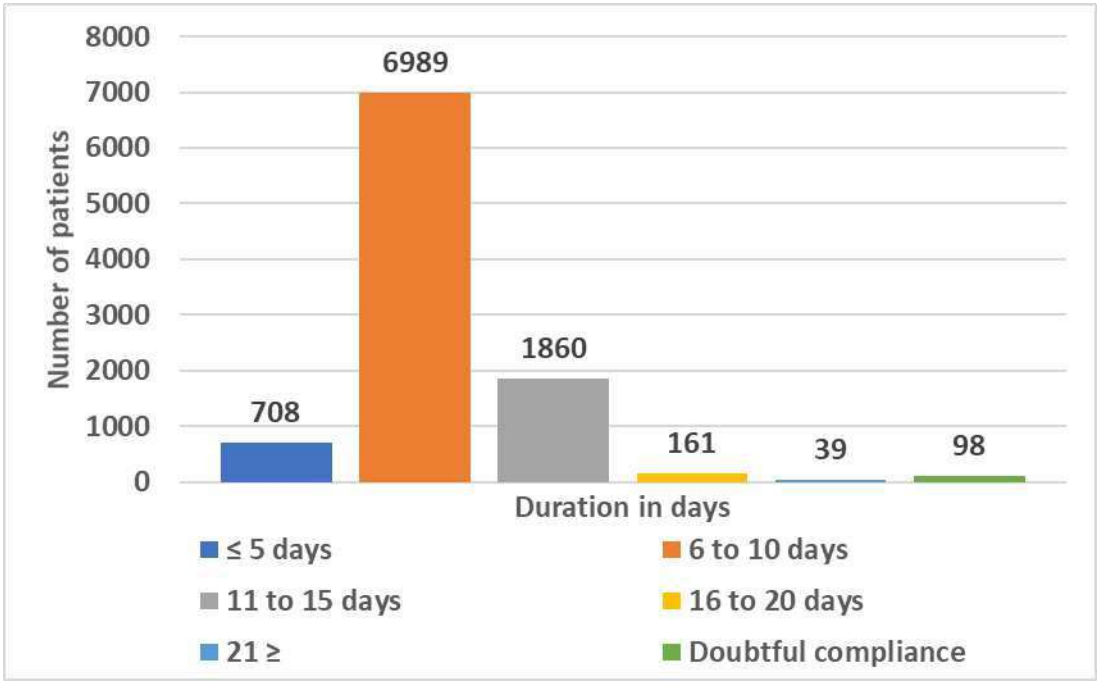

Figure 6: Reported duration of Ayurvedic medicine use (in days) among COVID-19 patients under Bheshajam (n=9855)

The majority (90%) of the patients treated under Bheshajam reported taking Ayurvedic medicines for more than five days. Approximately 7% (708) patients had ayurvedic medicines for less than five days, and only (1%) 98 patients showed doubtful compliance with treatment regimen (**Figure 6**).

Outcome of the Bheshajam Programme

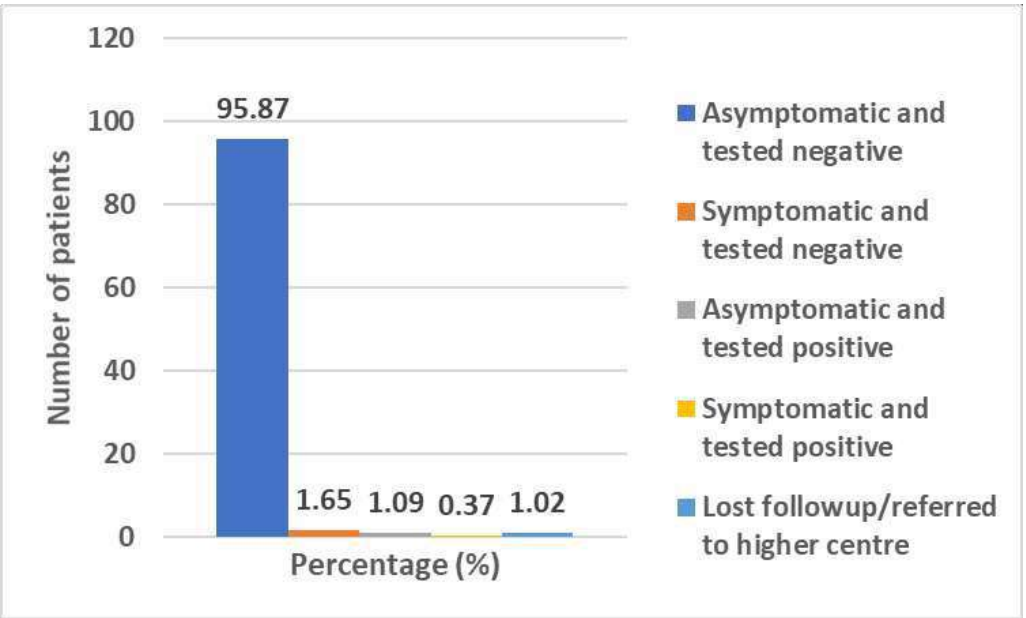

Figure 7: Reported Status of uncomplicated COVID-19 patients after Ayurvedic treatment under Bheshajam.

Out of 9,855 uncomplicated COVID-19 patients who underwent ayurvedic treatment at home or in designated Covid care centres and completed the Bheshajam program, 95.87% (9448) reported complete recovery and tested negative for the infection (**Figure 7**). However, 163 patients remained symptomatic despite testing after completing the Bheshajam course. Conversely, 107 (1.09%) patients, were asymptomatic but continued to test positive even after completing ayurvedic treatment. Thirty-six patients discontinued treatment while mildly symptomatic and remained positive for the infection without referral to higher centers. The Ayur Raksha Clinics reported a complete loss of follow-up or referral to higher centers in 101 patients (1.02%).

Of these, 44 were referred by designated health authorities, with 35 requiring intensive care (0.36% of 9,855 patients). Four patients required ventilation, and two ultimately succumbed—one due to pneumonia and the other due to respiratory failure.

Details regarding the referral cases during the Bheshajam program from 1 December 2020 to 15 January 2021 are presented in **Table 4**.

Table 4: Reported reasons for referral during ayurvedic treatment under Bheshajam from 1 December 2020 to 15 January 2021.

Details	Number of Patients
Shortness of breath	12
No symptomatic relief	11
Worsening of existing/developing new symptoms	9
Nausea/vomiting	5
Reason not clear	21
Total	44

Table 5 depicts the outcome of uncomplicated COVID-19 patients treated under the Bheshajam programme. Of the patients treated, 9,403 (95.41%) reported complete recovery without persistent symptoms or post-COVID complications. However, 4% (395 patients) experienced persistent symptoms or post-COVID ailments despite testing negative for SARS-CoV-2 during the evaluation period from 1 December 2020 to 15 January 2021.

The status of 43 patients remains unknown due to loss of follow-up, while 12 patients continued Test positive despite being asymptomatic even after three weeks of follow-up.

Table 5: Final outcomes of the patients, who were under Ayurvedic treatment, reported during the three weeks follow-up after completing Bheshajam from 1 December 2020 to January 2021.

Final known outcome	Number	Percentage (%)
Cured completely	9403	95.41
Death	2	0.02
Not known	43	0.44
Remained positive for SARS CoV-2	12	0.12
Tested negative with sequalae or persistent symptoms	395	4.01
Total	**9855**	**100**

End of the report

Data evaluated and submitted by **Dr Rajmohan V**
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ഭരണഭാഷ-മാതൃഭാഷ

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സി2-97395/2020

തീയതി : 21.07.2020

സർക്കുലർ

വിഷയം : ഭാരതീയ ചികിത്സാ വകുപ്പ് - ആയുർരക്ഷ ഡേറ്റാ ഇവാലുവേഷനു വേണ്ടി മെഡിക്കൽ ഓഫിസർമാരെ നിയോഗിക്കുന്നത് സംബന്ധിച്ച്.

സൂചന : 30.06.2020-ലെ സ്റ്റേറ്റ് ആയുർവ്വേദ കോവിഡ് റെസ്പോൺസ് സെൽ സ്റ്റേറ്റ് കോ-ഓർഡിനേറ്റർ ഡോ. രാജ്മോഹന്റെ കത്ത്.

സ്റ്റേറ്റ് ആയുർവ്വേദ കോവിഡ് റെസ്പോൺസ് സെൽ സ്റ്റേറ്റ് കോ-ഓർഡിനേറ്ററിന്റെ അപേക്ഷ പ്രകാരം താഴെപറയുന്ന ഭാരതീയ ചികിത്സാ വകുപ്പ്/നാഷണൽ ആയുഷ് മിഷൻ/നാഷണൽ ഹെൽത്ത് മിഷൻ എന്നീ വകുപ്പികളിലുള്ള മെഡിക്കൽ ഓഫിസർമാരെ ആയുർരക്ഷ ഡേറ്റാ ഇവാലുവേഷനു വേണ്ടി നിയോഗിക്കുന്നു.

ക്രമ നം	പേര്	സ്ഥാപനം
തിരുവനന്തപുരം		
1.	ഡോ. പ്രവിത കുമാരി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, ബാലരാമപുരം
2.	ഡോ. അശ്വതി എസ്	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി, വർക്കല
3.	ഡോ. ആനന്ദ്	ആയുഷ് ഗ്രാമം, പെരുങ്കടവിള
4.	ഡോ. മാലിനി ആർ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കിളിമാനൂർ
5.	ഡോ. കാർത്തിക നായർ	എൻ.എച്ച്.എം ആയുർവ്വേദ ഡിസ്പെൻസറി, കരകുളം
കൊല്ലം		
1.	ഡോ. പ്രവീൺ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, തൃക്കടവൂർ
2.	ഡോ. എസ് രശ്മി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, ഇരവിപുരം
3.	ഡോ. ശ്രീദേവി	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, പരവൂർ
4.	ഡോ. വിഷ്ണു മോഹൻ	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, തലവൂർ
5.	ഡോ. എൻ ശരത്ത്	എൻ.എച്ച്.എം കല്ലുവാതുക്കൽ

പത്തനംതിട്ട		
1.	ഡോ. മഞ്ജു ജി എൽ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, തുമ്പമൺ
2.	ഡോ. ശ്രീദേവി എൻ നമ്പൂതിരി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, തൊട്ടപ്പുഴശ്ശേരി
3.	ഡോ. മനോജ് എം	ജില്ലാ ആയുർവ്വേദ ഡിസ്പെൻസറി, അയിരൂർ
4.	ഡോ. രസ്മി	ആയുഷ് ഗ്രാമം
5.	ഡോ. സുനിൽ കെ ജോൺ	എൻ.എച്ച്.എം ഏനാദിമംഗലം
ആലപ്പുഴ		
1.	ഡോ. നിഷ എൻ ടി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കണ്ടല്ലൂർ
2.	ഡോ. മനു വി കെ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, താഴക്കര
3.	ഡോ. അർജ്ജുൻ മോഹൻ	എൻ.എച്ച്.എം അമ്പലപ്പുഴ
4.	ഡോ. ശാലിനി തോമസ്	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി, ആലപ്പുഴ
5.	ഡോ. അതുൺ ജി ദേവ്	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി, ആലപ്പുഴ
കോട്ടയം		
1.	ഡോ. ജ്യുവൽ ജോസ്	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, കോത്തല
2.	ഡോ. നിത എം എസ്	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കുമരനെല്ലൂർ
3.	ഡോ. ധന്യ സി	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, വൈക്കം
4.	ഡോ. പ്രദീപ് തോമസ്	എൻ.എച്ച്.എം മുന്നിലാവ്
5.	ഡോ. സുധീഷ് കുമാർ	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, നാട്ടകം (NAM)
ഇടുക്കി		
1.	ഡോ. ജിനേഷ് ജെ മേനോൻ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, എരട്ടയാർ
2.	ഡോ. ക്രിസ്റ്റി ജെ തുണ്ടിപറമ്പിൽ	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി (അനക്സ്) പാറേമാവ്
3.	ഡോ. ദീപക് സി നായർ	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി (അനക്സ്) പാറേമാവ്
4.	ഡോ. അഭിഷേക് പി	എൻ.എച്ച്.എം കരുണാപുരം
5.	ഡോ. കൃഷ്ണപ്രിയ കെ ബി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, വാത്തിക്കുടി
എറണാകുളം		
1.	ഡോ. സുധിൻ കൃഷ്ണൻ. ടി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, പുത്തൻകുരിശ്
2.	ഡോ. ആശാമോൾ ടി. സി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, തൃക്കാക്കര
3.	ഡോ. ജിൻഷിദ് സദാശിവൻ	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, പാലക്കുഴ
4.	ഡോ. നിസാർ മുഹമ്മദ്	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, നോർത്ത് പറവൂർ
5.	ഡോ. ദീപ കെ സി	എൻ.എച്ച്.എം, തിരുവണിയൂർ
തൃശ്ശൂർ		
1.	ഡോ. നേത്രദാസ് പി കെ	രാമവർമ്മ ജില്ലാ ആയുർവ്വേദ ആശുപത്രി, തൃശ്ശൂർ
2.	ഡോ. ഷിജി പി കെ	കേരള ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് സ്പോർട്സ് ആയുർവ്വേദ റിസർച്ച്
3.	ഡോ. ബിബിൻ കെ മാത്യു	കേരള ഇൻസ്റ്റിറ്റ്യൂട്ട് ഓഫ് സ്പോർട്സ് ആയുർവ്വേദ റിസർച്ച്
4.	ഡോ. അരുൺ എസ് ആർ	രാമവർമ്മ ജില്ലാ ആയുർവ്വേദ ആശുപത്രി, തൃശ്ശൂർ (NAM)
5.	ഡോ. സുബ്ന കൃഷ്ണൻ	എൻ.ആർ.എച്ച്.എം കട്ടകമ്പൽ

പാലക്കാട്		
1.	ഡോ ബാബു	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി, പാലക്കാട്
2.	ഡോ. കൃഷ്ണകുമാർ എച്ച്	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കറ്റാനശ്ശേരി
3.	ഡോ. ഷബാന	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, ചെറുപ്പുള്ളശ്ശേരി
4.	ഡോ. നിതിൻ മോഹൻ	നാഷണൽ ആയുഷ് മിഷൻ
5.	ഡോ. ശാലു ശശി	എൻ.എച്ച്.എം, ജി.എ.എച്ച് ചളവറ
മലപ്പുറം		
1.	ഡോ. കവിത വി എൻ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, പാണ്ടിക്കാട്
2.	ഡോ. വൃന്ദ റോയി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, മാമ്പുറം
3.	ഡോ. നൗഫൽ പനക്കൽ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കൊടക്കാട്
4.	ഡോ. നൗഫൽ റഹ്മാൻ	എൻ.എച്ച്.എം ആലിപറമ്പ്
5.	ഡോ. അനുഷ	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, പൊന്നാനി (NAM)
കോഴിക്കോട്		
1.	ഡോ. സജിത്ത് വി പി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, നടുപൊയിൽ
2.	ഡോ. യദുനന്ദൻ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കടലുണ്ടി
3.	ഡോ. എൻ രാജേഷ്	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, എടച്ചേരി
4.	ഡോ. പ്രജിത പി കെ	നാഷണൽ ഹെൽത്ത് മിഷൻ
5.	ഡോ. കിഷോർ ലാൽ	നാഷണൽ ഹെൽത്ത് മിഷൻ
വയനാട്		
1.	ഡോ. രേഖ സി എൻ	സർക്കാർ ആയുർവ്വേദ ടൈബൽ ഡിസ്പെൻസറി, കാരിയോട്
2.	ഡോ. അരുൺ ജി	താലൂക്ക് ആയുർവ്വേദ ആശുപത്രി, സുൽത്താൻ ബത്തേരി
3.	ഡോ. മഞ്ജു പി ടി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, മുട്ടിൽ
4.	ഡോ. ബിജുല ബാലകൃഷ്ണൻ	എൻ.എച്ച്.എം വൈത്തിരി
5.	ഡോ. സിജോ	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, പാതിരിച്ചാൽ (NAM)
കണ്ണൂർ		
1.	ഡോ. ദീപരാജ് വി ടി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കതിരൂർ
2.	ഡോ. ശ്രുതി ടി പി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, കീഴൂർ-ചാവശ്ശേരി
3.	ഡോ. പ്രവീൺ പി ആർ	എൻ.എച്ച്.എം ചെറുപുഴ
4.	ഡോ. സുജ ജി നായർ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, അഞ്ചരക്കണ്ടി
5.	ഡോ. ജയേഷ്	സർക്കാർ ആയുർവ്വേദ ആശുപത്രി, പയ്യന്നൂർ

കാസറഗോഡ്		
1.	ഡോ. ജയ ജി	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, മുദിയക്കൽ
2.	ഡോ. ഭാഗ്യശ്രീ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, അമ്പലത്തുകര
3.	ഡോ. ഫാത്തിമ യാസ്മിൻ	സർക്കാർ ആയുർവ്വേദ ഡിസ്പെൻസറി, ചെമ്മനാട്
4.	ഡോ. സത്യേന്ദ്ര ഡി	എൻ.എച്ച്.എം ഡിസ്പെൻസറി, മുലിയാർ
5.	ഡോ. നിഷാന്ത്	ജില്ലാ ആയുർവ്വേദ ആശുപത്രി. കാസറഗോഡ്

വിശ്വാസപൂർവം,

ഡയറക്ടർ
ഭാരതീയ ചികിത്സാ വകുപ്പ്

എല്ലാ ജില്ലാ മെഡിക്കൽ ഓഫീസർമാർക്കും.

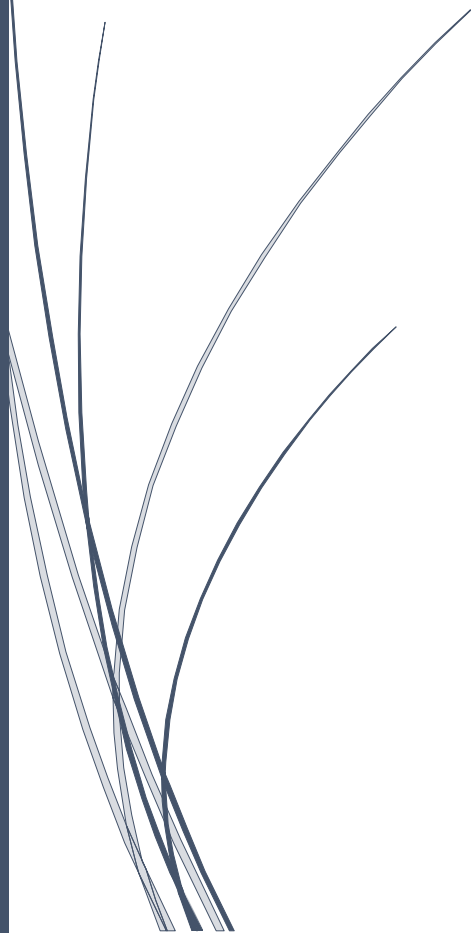
എസ്.കെ

30/11/2020

ഭേഷജം

(ഭ ോവിഡ്-19 ഭ@ോഗി ശ്രേക്കായുള്ള ആയുർഭവദ- ഭയോഗ ചി ിത്സോ പദ്ധതി)

മോർഗ്ഗ ഭ@ഖ



ഭേറ്റ് ആയുർഭവദ ഭ ോവിഡ് -19 റെസ്ഭപോൺസ് റസൽ

ആയുഷ് വ ുപ്പ്, ഭ @ള സർക്കോർ

18/11/2020 തീയതിയിറെ G.O.(Rt)No.425/2020/AYUSH നമ്പർ സർക്കോർ ഉത്ത@വ് പ്ര ോ@◌ം ഭ പ്ര സർക്കോർ നിർഭേശിച്ചിട്ടുള്ള മോനദണ്ഡങ്ങൾക്കനുസൃതമോയി ആയുർഭവദ-ഭയോഗ ചി ◌ിത്സറയ ഭ ോവിഡ്-19 ഭ@ോഗത്തിന് ഉപഭയോഗറപ്പടുത്തോൻ തീ@ുമോനിച്ചിട്ടുള്ളതും, അതിനനുസൃതമോയി ഭ @ളത്തിൽ ഭ ോവിഡ്-19 പ്പതിഭ@ോധത്തിനോയി @ൂപം നൽ ◌ി പ്പവർത്തനത്തി◌ൊ◌ി@◌ിക്കുന്ന ആയുർഭവദ പദ്ധതിയിൽ ആവശയമോയ മോറ്റം വ@ുത്തിയിട്ടുള്ളതുമോ ുന്നു. ഭ @ള സർക്കോർ ഉത്ത@വു പ്ര ോ@◌ം ഫേ/റസക്കൻഡ് ലെൻ ഭ ോവിഡ് ചി ◌ിത്സോ ഭ പ്രങ്ങളി◌ൊു◌ം, വീടു ളി◌ൊു◌ം ഐറസോഭെറ്റ് റചയ്യറപ്പട്ടിട്ടുള്ള ഗു@ുത@ോവസ്ഥയി◌ൊല്ലോത്ത ഭ ോവിഡ്-19 ഭ@ോഗി ൾക്ക് (ോറ്റഗി എ) ആയുർഭവദ ചി ◌ിത്സ റചയ്യുന്നതിനുള്ള നിർഭേശങ്ങളും അതിനുള്ള അനുബന്ധ ഭ@ഖ ളും ഉൾറപ്പടുന്നതോണ് ഈ മോർഗഭ@ഖ.

റപോതുനിർഭദശങ്ങൾ

1. മേൽ സർക്കാർ ഉത്തരവ് നടപ്പിലാക്കുന്നതിന് വിവിധ വകുപ്പുകൾക്ക് സഹായകോകുന്ന പ ാതു നിർമേശങ്ങളാണ് ഈ ോർY മരഖയിലുള്ളത്. ഉത്തരവിപല താത് രയങ്ങൾക്ക് വിരുദ്ധോകാത്ത തരത്തിൽ ദ്ധതി നിർവ്വഹണത്തിനനുമയാജ്യോയ തീരുോനങ്ങൾ അതാതു വകുപ്പുകൾക്ക് സവീകരിക്കാവുന്നതാണ്. സർക്കാർ നിബന്ധനകൾക്കായി അനുബന്ധോയി മേർത്തിരിക്കുന്ന സർക്കാർ ഉത്തരവ് കാണുക
2. വീടുകളിലും ഫസ്റ്റ്/പസക്കൻഡ് ലലൻ ോികിത്സാ മകന്ദ്രങ്ങളിലുോുള്ള ഗുരുതരാവസ്ഥയിലല്ലാത്ത മകാവിഡ്-19 (കാറ്റഗറി എ) മരാഗികൾക്കാണ് ആയുർമവദ ോികിത്സ ലഭ്യോമക്കണ്ടത്.
3. ഐപസാമലഷനിലുള്ള മകാവിഡ്-19 മരാഗികൾക്ക് ആയുർമവദ/മയാഗ ോികിത്സ ലഭ്യോക്കുന്നത് മവണ്ട രിശീലനും സിദ്ധിച്ച ഒരു പേഡിക്കൽ ഓഫീസർ (ഐ.എസ്.എും.)/ആയുർമവദ മഡാക്ടർ മേൽമനാട്ടത്തിൽ ോൻ്തോയിരിക്കണും,
4. മേൽ സർക്കാരുത്തരവ് ൻ് കാരും, മകാവിഡ് മരാഗികൾക്ക് ഏറ്റവുും ൻ് മയാജ്ജൻ്ട് ദോയ രീതിയിൽ ആയുർമവദ ോികിത്സ ലഭ്യോക്കുന്നതിമലക്കു സുംസ്ഥാനത്തു മസ്റ്റ് ആയുർമവദ മകാവിഡ്-19 പറസ്മ ാൺസ് പസല്ലിനു (എസ്.എ.സി.ആർ.സി) കീഴിൽ നിലവിലുള്ള സുംവിധാനങ്ങപള അമതരീതിയിൽ ഉ മയാഗപപ്പടുത്താവുന്നതാണ്.
5. **"ഭേഷജം"** എന്ന മ രിലുള്ള മകാവിഡ് മരാഗികൾക്കായുള്ള ആയുർമവദ/മയാഗ ോികത്സാ ദ്ധതിയുപട അടിസ്ഥാന നടത്തിപ്പ് ോുേതല ഭ്ാരതീയ ോികിത്സാ വകുപ്പ്, ആയുർമവദ പേഡിക്കൽ വിദയാഭ്യാസ വകുപ്പ്, നാഷണൽ ആയുഷ് ോിഷൻ, നാഷണൽ പഹൽത്ത് ോിഷൻ എന്നീ വകുപ്പുകളുപട/ഏജ്ൻസികളുപട ഡിസ്പ ൻസറികളിൽ/ആശു ന്ത്രികളിൽ ൻ് വർത്തിക്കുന്ന ആയുർ രക്ഷ ക്ലിനിക്കുകൾക്കായിരിക്കുും. ആയതിമലക്കായി ആയുർ രക്ഷ ക്ലിനിക്കുകളുപട മനത്യതവത്തിൽ രൂ ുംം നൽകിയിട്ടുള്ള ആയുർ രക്ഷ ട്ടുക്ക മഫാജ്ലിപന ഉ മയാഗപപ്പടുത്താവുന്നതാണ്.

6. മകാവിഡ് മരാഗികൾക്ക് ആയുർമവദ/മയാഗ ോികിത്സ സുംസ്ഥാന വയാ കോയി നടപ്പിലാക്കുന്നതിന് ോുഖയ ങ്കുള്ളത് ഭ്ാരതീയ ോികിത്സാ വകുപ്പ്, നാഷണൽ ആയുഷ് ോിഷൻ, നാഷണൽ പഹൽത്ത് ോിഷൻ എന്നിവയ്ക്കാണ്. അതുപകാണ്ടു തപന്ന നിലവിലുള്ള എല്ലാ സുംവിധാനങ്ങളും ഉ മയാഗപപ്പടുത്തി മകാവിഡിപനതിപരയുള്ള മേൽ വകുപ്പുകളുപട ്ഠ വർത്തനങ്ങൾ ശക്തിപപ്പടുമത്തണ്ടതുണ്ട്. ആയുർ രക്ഷ ക്ലിനിക്കുകളിമലക്ക് ആവശയോയ ോരുന്നുകൾ എത്തിച്ചു നൽകുക, ്ഠ വർത്തനങ്ങൾ ോുടക്കും കൂടാപത നടത്തുന്നതിനാവശയോയ ജ്ീവനക്കാരുപട ലഭ്യത ഉറപ്പാക്കുക, വിവരമശഖരണത്തിനു മവണ്ട സൗകരയങ്ങൾ ഉണ്ടാക്കുക എന്നിങ്ങപനയുള്ള എല്ലാ ്ഠ വർത്തനങ്ങളിലും ജ്ില്ലാ ആയുർമവദ മകാവിഡ്-19 പറസ്പ ാൺസ് പസല്ലിപനാപ്പും തപന്ന മേഖലാ എ ിപഡേിക് ്ഠ ിവൻഷൻ ആൻഡ് കൺമന്ട്രാൾ പസല്ലിപനയും ോുോതലപപ്പടുത്താവുന്നതാണ്. രണ്ടു സേിതികളുമടയും രഉപര ൂരകോയ ്ഠ വർത്തനും ഉറപ്പാക്കുവാനുള്ള ോുോതല ജ്ില്ലാ പേഡിക്കൽ ഓഫീസർ (ഐ.എസ്.എും) ന് നൽകാവുന്നതാണ്.

7. സർക്കാർ ആയുർമവദ പേഡിക്കൽ മകാമളജ്ുകളിൽ ്ഠ വർത്തിക്കുന്ന ആയുർ രക്ഷ ക്ലിനിക്കുകളിലൂപടയും മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങളിലൂപടയും മകാവിഡിനുള്ള ആയുർമവദ/മയാഗ ോികിത്സ ലഭ്യോക്കുന്നതിനുള്ള ോുോതല സ്ഥാ ന മേധാവിമക്കാ സ്ഥാ ന മേധാവി ോുോതലപപ്പടുത്തുന്ന ഉമദയാഗസ്ഥമനാ നൽകാവുന്നതാണ്.

8. വീടുകളിൽ ോികിത്സയിലുള്ള മകാവിഡ് മരാഗികളുപട ആവശയോയ എല്ലാ വിവരങ്ങളും ഇവിപട അനുബന്ധോയി മേർത്തിട്ടുള്ള മകസ് പറമക്കാർഡ് മഫാോിൽ മശഖരിച്ച് ആയുർ രക്ഷ ക്ലിനിക്ക് ്ഠ വർത്തിക്കുന്ന ഡിസ്പ ൻസറി/ആശു ന്ിയിൽ സൂക്ഷിമക്കണ്ടതും ആവശയോള്ള വിവരങ്ങൾ ദ്ധതിക്കായി സൂക്ഷിച്ചിട്ടുള്ള പരജ്ിസ്റ്ററിൽ മരഖപപ്പടുത്തി വയ്ക്കണ്ടതുോകുന്നു. അത്തരത്തിലുള്ള എല്ലാ വിവരങ്ങളുപടയും മരഖകളുപടയും ോുോതല അതതു സ്ഥാ നങ്ങളിപല ോാർജ്് പേഡിക്കൽ ഓഫീസർക്ക് നൽകാവുന്നതാണ്.

9. ഫസ്റ്റ്/പസക്കൻഡ് ലലൻ ോികിത്സാ മകന്ദ്രങ്ങളിലുള്ള ഗുരുതരാവസ്ഥയിലല്ലാത്ത മകാവിഡ്-19 (കാറ്റഗറി എ) മരാഗികൾക്ക് ഫലന്ദ് ദോയി ആയുർമവദ ോികിത്സ ലഭ്യോക്കുന്നതിനായി ഒരു ഐ.എസ്.എും പേഡിക്കൽ ഓഫീസപറ ്ഠ ആുത മകന്ദ്രങ്ങളിൽ മനാഡൽ ഓഫീസർ (ഐ.എസ്.എും) ആയി നിയോിമക്കണ്ടതുണ്ട്.

അത്തരത്തിൽ നിയോക്കുന്ന മനാഡൽ ഓഫീസപറക്കുറിച്ചുള്ള വിവരങ്ങൾ മകാവിഡ് ോികിത്സാ മകന്ദ്രത്തിപല നടത്തിപ്പ് ോുോതലയുള്ള ഉമദയാഗസ്ഥപര യഥാ സേയും അറിയിക്കുന്നത് വിവിധ ്ട വർത്തനങ്ങളുപട ഏമകാ നത്തിന് അതയന്താമ ക്ഷിതോണ്.

10. ഇത്തരത്തിൽ മനാഡൽ ഓഫീസർമ്മാപര (ഐ.എസ്.എും) നിയോക്കുമപാൾ അവർ രോവധി മകാവിഡ് ോികിത്സാ മകന്ദ്രും ്ട വർത്തിക്കുന്ന അപത തമേശ സവയുംഭ്രണ സ്ഥാ ന രിധിയിലുള്ള സർക്കാർ ആയുർമവദ സ്ഥാ നത്തിൽ നിന്നുള്ളവരായിരുന്നാൽ ഉിതോയിരിക്കും
11. നിലവിൽ മകാവിഡ് ോികിത്സാ മകന്ദ്രത്തിപല മനാഡൽ ഓഫീസർ ഐ.എസ്.എും പേഡിക്കൽ ഓഫീസർ ആപണങ്കിൽ ആയുർമവദ/ മയാഗ ോികിത്സയുപട മേൽമനാട്ടും ്ട ആുപേഡിക്കൽ ഓഫീസർക്ക് തപന്ന നൽകാവുന്നതാണ്.
12. സർക്കാർ ആയുർമവദ പേഡിക്കൽ മകാമളജ്ുകളിൽ ്ട വർത്തിക്കുന്ന മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങളിൽ മേൽ കാരയങ്ങൾ ഉറപ്പു വരുത്തുന്നതിനുള്ള ോുോതല സ്ഥാ ന മേധാവിമക്കാ സ്ഥാ ന മേധാവി ോുോതലപപ്പടുത്തുന്ന ഉമദയാഗസ്ഥമനാ നൽകാവുന്നതാണ്.
13. മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങളിൽ ോികിത്സയിലുള്ള മരാഗികളുപട ആവശയോയ എല്ലാ വിവരങ്ങളുും ഇവിപട അനുബന്ധോയി മേർത്തിട്ടുള്ള മകസ് പറമക്കാർഡ് മഫാോിൽ മശഖരിച്ചു ്ട ആുത മകന്ദ്രങ്ങളിൽ സൂക്ഷിമക്കണ്ടതുും ആവശയോുള്ള വിവരങ്ങൾ ദ്ധതിക്കായി സൂക്ഷിച്ചിട്ടുള്ള പരജ്ിസ്റ്ററിൽ മരഖപപ്പടുത്തി വയ്ക്കണ്ടതുോകുന്നു. അത്തരത്തിലുള്ള എല്ലാ വിവരങ്ങളുപടയുും മരഖകളുപടയുും ോുോതല മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങളിൽ ആയുർമവദ/മയാഗ ോികിത്സയുപട ോുോതലയുള്ള മനാഡൽ ഓഫീസർ (ഐ.എസ്.എും)/ആയുർമവദ മഡാക്ടർക്ക് നൽകാവുന്നതാണ്.
14. മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങൾ ്ട വർത്തനും നിറുത്തുന്ന ോുറയ്ക്ക് അമപ്പാൾ ോോർജ്ുള്ള മനാഡൽ ഓഫീസർ (ഐ.എസ്.എും) മേൽ സൂോിപ്പിച്ച ്ട കാരുള്ള മകസ് പറമക്കാർഡ് മഫാോുകൾ, പരജ്ിസ്റ്ററുകൾ, ആയുർമവദ/മയാഗ ോികിത്സയുോയി ബന്ധപപ്പട്ടുള്ള മരഖകൾ എന്നിവപയല്ലുും തപന്ന ജ്ില്ലാ പേഡിക്കൽ ഓഫീസറുപട അറിമവാപട മനാഡൽ ഓഫീസറുപട തപന്ന സ്ഥാ നത്തിൽ സൂക്ഷിക്കാവുന്നതാണ്. അത്തരത്തിലുള്ള എല്ലാ മരഖകളുപടയുും ോുോതല ്ട ആുതമനാഡൽ ഓഫീസർ മജ്ാലിപേയുന്ന സ്ഥാ നത്തിപല

മേധാവിമക്കാ, സ്ഥാ ന മേധാവി ോുേതലപപ്പടുത്തുന്ന ഉമദയാഗസ്ഥമനാ നൽകാവുന്നതാണ്.

15. സർക്കാർ ആയുർമവദ പേഡിക്കൽ മകാമളജ്ുകളിൽ മകാവിഡ് ോികിത്സയുോയി ബന്ധപപ്പട്ടുള്ള മേൽസൂോിപ്പിച്ച ിൽ കാരുേള്ള എല്ലാ മരഖകളുപടയും, പരജ്ിസ്റ്ററുകളുപടയും ോുേതല സ്ഥാ ന മേധാവിമക്കാ, സ്ഥാ ന മേധാവി ോുേതലപപ്പടുത്തുന്ന ഉമദയാഗസ്ഥമനാ നൽകാവുന്നതാണ്.
16. ആയുർമവദ/മയാഗ ോികിത്സയിപലത്തുന്ന എല്ലാ മരാഗികൾക്കും അവപര വിടുതൽ പേയ്യുന്ന ോുറയ്ക്ക് ഒരു ഡിചാർജ്് സമ്മറി നൽമകണ്ടതാണ്. ഡിചാർജ്് പേയ്യുന്നതിനുള്ള കാരണങ്ങളും ഡിചാർജ്് സേയപത്ത അവരുപട മരാഗാവസ്ഥയും, നൽകിയിട്ടുള്ള ലവമദയാ മദശങ്ങളും, മഫാമളാ-അ ് വിവരങ്ങളും ഒപക്ക അടങ്ങുന്നതാകണും ഡിചാർജ്് കാർഡ്. ിൽ തുത വിവരങ്ങൾ മകസ് പറമക്കാർഡ് മഫാോിലും മരഖപപ്പടുത്തി സൂക്ഷിമക്കണ്ടതാണ്.
17. മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങളിപല നിലവിലുള്ള മകസ് ഷീറ്റിലും ഡിചാർജ്് കാർഡിലും ആയുർമവദ ോികിത്സ മരാഗിക്ക് നൽകുന്നതായും/നല്ികയതായുോുള്ള സൂോനകൾ കഴിയുപേങ്കിൽ ഉൾപപ്പടുത്തുന്നത് ിൽ ആുത മരാഗിയുപട ിന്നീടുള്ള ോികിത്സാ മവളകളിൽ ഉ മയാഗപപ്പടും.
18. മകാവിഡ്-19 മരാഗത്തിനുള്ള സിവിയറിറ്റി/പറഫറൽ/ഡിചാർജ്് ോനദണ്ഡങ്ങൾ സുംസ്ഥാന ആമരാഗയ വകുപ്പ് നിർമേശിക്കുന്നതിനനുസരിച്ചാണ് ആയുർമവദ/മയാഗ ോികിത്സ മതടുന്ന മരാഗികളിലും ഉ മയാഗിമക്കണ്ടത്. ആത്തരും ോനദണ്ഡങ്ങളും പ ാതുനിർമദശങ്ങളും ഡിസ്സ ൻസറി/ആശു ന്തികളിൽ ിൽ വർത്തിക്കുന്നആയുർ രക്ഷ ക്ലിനിക്കുകളിമലക്കും മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങളിമലക്കും സേയാസേയും ോനസിലാക്കി നടപ്പിലാക്കുന്നതിനുള്ള ഉത്തരവാദിത്തും ജ്ില്ലാ മകാർഡിമനറ്റർമ്മാർ, മനാഡൽ ഓഫീസർമ്മാർ (ഐ.എസ്.എും) എന്നിവരിൽ നിക്ഷിപ്ോത ാമക്കണ്ടതാണ്. മേൽ ിൽ വ്യത്തിയുപട കൃതയത ഉറപ്പാക്കുന്നതിമലക്ക് ആയുർമവദ വിദയാഭ്യാസ വകുപ്പിലും ഭ്ാരതീയ ോികിത്സാവകുപ്പിലും ിൽ വർത്തിക്കുന്ന മസ്റ്റ് മകാർഡിമനറ്റർോപര ോുേതലപപ്പടുത്താവുന്നതാണ് (സുംസ്ഥാന ആമരാഗയവകുപ്പിൽ നിന്നുള്ള ലഭ്യമായ ഏറ്റവും ുതിയ ോനദണ്ഡങ്ങൾ അനുബന്ധമായി മേർത്തിട്ടുണ്ട്.).

19. മരാഗനിർണ്ണയത്തിനും ോികിത്സക്കുോയി പടലിപേഡിസിൻ സുംവിധാനവും വീഡിമയാ മകാൺപഫപറൻസിങ് സുംവിധാനവും ഉ മയാഗിക്കാവുന്നതാണ്. മഹാും ഐപസാമലഷനിലുള്ള മരാഗികളിൽ ഇത് വിമശഷിച്ചും ങ് മയാജ്ഞന്ദ് ദോയിരിക്കും. ോികിത്സയിലുള്ള മകാവിഡ് മരാഗികളുപട ക്ളിനിക്കൽ മകാഴ്്സ, ക്ലിനിക്കൽ ഔട്ടും എന്നിവ കഴിയുന്നന്ദ്ത മശഖരിമക്കണ്ടതും മകാവിഡ് ോുക്തരായാൽ ുനർജ്ജിയിമലപക്കത്തിക്കാൻ ന്ദശിമക്കണ്ടതുോകുന്നു

20. ആയുർമവദ ോരുന്നു മയാഗിക്കപവ മകാവിഡ് ോൂലമോ അല്ലാപതമയാ ഏപതങ്കിലും തരത്തിൽ ഇതര ോികിത്സയിമലക്കു മ ാമകണ്ടി വന്നാൽ അവപര കുറിച്ചുള്ള വിവരങ്ങൾ കൃതയോയി മശഖരിമക്കണ്ടത് ആവശയോണ്

21. മകാവിഡ് ോികിത്സ ൂർത്തിയാക്കുന്ന മരാഗികൾക്ക് അവരുപട താേസ സ്ഥലത്തിന് ഏറ്റവും അടുത്തുള്ളതും അനുമയാജ്യോയതുോയ ആയുർമവദ സ്ഥാ നത്തിൽ നിന്ന് മ ാസ്റ്റ്-മകാവിഡ് ോികിത്സാ ദ്ധതിയായ ുനർജ്ജിയുപട മസവനും ലഭ്യോക്കാനുള്ള ോാർY നിർമദശും നൽമകണ്ടതാണ്.

22. അതാതു ജ്ില്ലകളിപല സാഹേരയങ്ങൾ േനസിലാക്കി അടിയന്തിര ോികിത്സാ സുംബന്ധിയായ തീരുോനങ്ങൾ എടുക്കുന്നതിമലക്ക് ജ്ില്ലാ പേഡിക്കൽ ഓഫിസർ പേയർോനായി ങ് വർത്തിക്കുന്നതും ഭ്ാരതീയ ോികിത്സാ വകുപ്പിപല വിദഗ്ധരായ മഡാക്ടർോപര ഉൾപപ്പടുത്തിപക്കാണ്ടുള്ളതുോയ ഒരു പേഡിക്കൽ അലഡവസറി സുംവിധാനും എല്ലാ ജ്ില്ലകളിലും സജ്ജോക്കാവുന്നതാണ്. അതിൽ ആവശയപേങ്കിൽ, വകുപ്പ് തീരുോനേനുസരിച്ചു സ്ന്ദ്തീ/ശിശുമരാഗ വിദഗ്ധപരയും ഉൾപപ്പടുത്താവുന്നതാകുന്നു. ങ് ത്തെ പേഡിക്കൽ അലഡവസറി സുംവിധാനത്തിനായി ഭ്ാരതീയ ോികിത്സാ വകുപ്പിൽ ങ് വർത്തിക്കുന്ന ജ്ില്ലാ എ ിപഡോക് പങ് പവൻഷൻ ആൻഡ് കൺമന്ദ്ടാൾ പസല്ലിപന ഉ മയാഗപപ്പടുത്താവുന്നതാണ്.

23. മകാവിഡ് ോികിത്സാ മകന്ദ്രങ്ങൾ ങ് വർത്തിക്കുന്ന സർക്കാർ പേഡിക്കൽ ആയുർമവദ മകാമളജ്ുകളിലും ഇത്തരത്തിൽ പേഡിക്കൽ അലഡവസറി സുംവിധാനങ്ങൾ/ പേഡിക്കൽ മബാർഡുകൾ നടപ്പിൽ വരുത്താവുന്നതാണ്.

24. വയക്തോയ മരാഗനിർണ്ണയത്തിനും ദിവമസനയുള്ള വിലയിരുത്തലുകൾക്കും മശഷും മകാവിഡ് ോികിത്സാക്കായുള്ള ോരുന്നുകളും ഇതര ോികിത്സാ വിധികളും നിശ്ചയിക്കുന്നതാകും അനുമയാജ്യും. ഓമരാ സ്ഥലപത്തയും

ോർജ്് പേഡിക്കൽ ഓഫീസർ (ഐ.എസ്.എും), മനാഡൽ ഓഫീസർ (ഐ.എസ്.എും), എന്നിവർക്ക് തീരുോനിക്കാവുന്നതാണ്. ഔഷധ ദുരു മയാഗവും, നഷ്ടവും രോവധി കുറയ്ക്കുവാൻ മവണ്ട നട ടികൾ സവീകരിമക്കണ്ടതാണ്.

25. ആയുർമവദ/മയാഗ ോികിത്സപയ മകാവിഡിൽ ഉൾപപ്പടുത്തിപക്കാണ്ടുള്ള മകന്ദ ോനദണ്ഡങ്ങൾക്കനുസരിച്ചു രിഷ്കരിച്ച എസ്.എ.സി.ആർ.സിയുപട ോികിത്സാ മന്ത് ാമട്ടാമകാൾ അനുബന്ധോയി മേർത്തിട്ടുണ്ട്. എന്നിരുന്നാലും അതയാവശയ സരർഭ്ങ്ങളിൽ, ന്ത് ആ മന്ത് ാമട്ടാമക്കാളിന് ുറത്തുള്ള ഔഷധങ്ങളും മരാഗിക്ക് നിശ്ചയിക്കാനുള്ള സവാതന്ത്ന്തയും ോികിത്സകന് ഉ മയാഗിക്കാവുന്നതാണ്. ഇതിനായി ജ്ില്ലാതലത്തിലും സുംസ്ഥാന തലത്തിലും രൂ ുംം നൽകിയിട്ടുള്ള പേഡിക്കൽ അലഡവസറി സുംവിധാനങ്ങളുപട സഹായവും മതടാവുന്നതാണ്. അത്തരത്തിൽ ോരുന്നുകൾ ഉ മയാഗിമക്കണ്ടി വന്ന സാഹേരയും ജ്ില്ലാ മകാർഡിമനറ്റർ/മനാഡൽ ഓഫീസപറ (ഐ.എസ്.എും) അറിയിമക്കണ്ടതാണ്. ഭ്ാവിയിൽ എസൻഷയൽ ന്ത്ഡഗ് ലിസ്റ്റ് ുതുക്കുന്നതിന് ആയതു സഹായകോകുും.

26. ോികിത്സക്കായി നിർമേശിച്ചിട്ടുള്ള ആയുർമവദ ോരുന്നുകൾപക്കാപ്പും എസ്.എ.സി.ആർ.സിയുപട എപെൻഷയൽ ന്ത്ഡഗ് ലിസ്റ്റിൽ റയപപ്പട്ടിരിക്കുന്ന ആമരാഗയ രി ാലനത്തിനുള്ള ോർയങ്ങളും യുക്തോയ രീതിയിൽ മഹാും/ഇന്റടിടയൂഷണൽ ഐപസാമലഷനിലുള്ളവരിമലക്കു എത്തിക്കുവാൻ രോവധി ന്ത്ശിമക്കണ്ടതാണ്. ആയതിമലക്ക് മസാഷയൽ ോീഡിയപയ ഉ മയാഗപപ്പടുത്താവുന്നതാണ്. ഒരു ജ്ില്ലയിൽ തയാറാക്കിയ അത്തരും ഠന സാോന്ത്ഗികൾ ഇതര ജ്ില്ലകളിലുും ന്ത് മയാജ്നപപ്പടുത്താവുന്നതുോണ്.

27. മഹാും/ഇന്റടിടയൂഷണനിലുള്ളവരുപട ോനസിക ആമരാഗയ രി ാലനത്തിനായുും കൃതയോയ നിർമദശങ്ങൾ ഉണ്ടാമകണ്ടതുണ്ട് ആയതിനായി ജ്ില്ലാ അടിസ്ഥാനത്തിൽ ആവശയോയ സുംവിധാനങ്ങൾ അടിയന്തിരോയി സജ്ജോമക്കണ്ടതാണ്. മഫാൺ വഴി നൽകുവാൻ കഴിയുന്ന ോനസിമകാല്ലാസന്ത് ദോയ വിവിധ രി ാടികൾ ജ്ില്ലാടിസ്ഥാനത്തിമലാ മേഖലാടിസ്ഥാനത്തിമലാ ആസൂന്ത്രണും പയ്യു നടപ്പിലാക്കാവുന്നതാണ്.

28. ോനസികാമരാഗയ ന്ത് വർത്തനങ്ങൾക്കായി ഭ്ാരതീയ ോികിത്സാ വകുപ്പിന് കീഴിൽ ന്ത് വർത്തിക്കുന്ന വിദഗ്ധരുപട മസവനും ജ്ില്ലാടിസ്ഥാനത്തിൽ ഉ മയാഗപപ്പടുത്താവുന്നതാണ്. ഭ്ാരതീയ ോികിത്സാ വകുപ്പിന് കീഴിലുള്ള മകാട്ടക്കൽ

സർക്കാർ ോനസിക ആമരാഗയ മകന്ദ്രും, മകാട്ടക്കൽ വി. ി. എസ്.വി. ആയുർമവദ മകാമളജ്് ോനസിക വിഭ്ാഗും, മേഖലാ പസല്ലുകൾ വിവിധ ആയുർമവദ മകാമളജ്ുകളിപല ോനസികാമരാഗയ വിദഗ്ദ്ധർ എന്നിവപര ഉൾപപ്പടുത്തി മേഖലാ അടിസ്ഥാനത്തിൽ ജ്ില്ലകളുപട ിൽ വർത്തനത്തിന് സഹായകോകുന്ന രീതിയിൽ ിൽ ത്തു ിൽ വർത്തനങ്ങൾ നടത്താവുന്നതുോണ്. ോനസികാമരാഗയ രുംഗത്ത് ോലപ്പുറത്ത് ിൽ വർത്തിച്ചുപകാണ്ടിരിക്കുന്ന "കൂപട" ഒരു നല്ല ോത്യകയാണ്. "കൂപട" യുപട ിൽ വർത്തനും സുംസ്ഥാനതലത്തിൽ ലഭ്യോക്കുന്നതുും രിഗണിക്കാവുന്നതാണ് . അതുമ ാപല തപന്ന നാഷണൽ ആയുഷ് ോിഷൻ നടപ്പിലാക്കിവരുന്ന ഹർഷും, ഭ്ാരതീയ ോികിത്സാ വകുപ്പ് നടപ്പിലാക്കിവരുന്ന ോനസികും (പ്ലാൻ) എന്നീ ദ്ധതികളുപട മസവനവുും ലഭ്യോക്കാവുന്നതാണ്.

29. മേൽ ിൽ വർത്തനങ്ങൾക്കാവശയോയ രിശീലനും മകാവിഡ് ിൽ തിമരാധവുോയി ബന്ധപപ്പട്ടു ിൽ വർത്തിക്കുന്ന പേഡിക്കൽ ഓഫീസർോർക്ക് ലഭ്യോക്കുന്നതിനായി ഭ്ാരതീയ ോികിത്സാ വകുപ്പിന് കീഴിലുള്ള മകാട്ടക്കൽ സർക്കാർ ോനസിക ആമരാഗയ മകന്ദ്രും, മകാട്ടക്കൽ വി. ി. എസ്.വി. ആയുർമവദ മകാമളജ്് ോനസിക വിഭ്ാഗും, മേഖലാ പസല്ലുകൾ എന്നിവിടങ്ങളിൽ നിന്നുോുള്ള സഹായും സവീകരിക്കാവുന്നതാണ്.
30. മകാവിഡിപനതിപര ആയുർമവദ ോരുന്ന് ഉ മയാഗിക്കാത്തവർക്കുും അനുമയാജ്യോയ ഭ്ക്ഷണ, ജ്ീവിത ലശലികപള കുറിച്ചുും, ോനസികാമരാഗയ ിൽ ദാനോയ വിവിധ കാരയങ്ങപളക്കുറിച്ചുും, മരാഗാവസ്ഥയ്ക്കനുസരിച്ചുള്ള മയാഗ ോുതലായ വയായാേ ോുറകപളക്കുറിച്ചുപേല്ലാോുള്ള നിർമദശങ്ങൾ മരാഗിക്കു താത് രയേുപണ്ടങ്കിൽ നൽകാവുന്നതാണ്.
31. ആയുർമവദ/മയാഗ ോികിത്സ സവീകരിക്കുന്ന മരാഗികളിൽ നിന്നുും നിശ്ചിത ോത്യകയിൽ ഒരു സമ്മത ന്ദ്തും വാമങ്ങണ്ടതുണ്ട്. മകാവിഡ് ോനദണ്ഡങ്ങളുപട ശ്ചാത്തലത്തിൽ മനരിട്ട് സമ്മത ന്ദ്തും വാങ്ങാൻ കഴിയാത്ത സാഹേരയും നിലവിലുപണ്ടങ്കിൽ വാട്ട്സ ആ ് ോുഖാന്തിരമോ മരാഗിയുപട അനുവാദമത്താപട മവായിസ് ക്ലിപ്പാമയാ പടക്സ്റ്റ് പേമെജ്് ആമയാ ആയത് വാങ്ങാവുന്നതാണ്.
32. ോികിത്സാകാലയളവിൽ എല്ലാദിവസവുും വീടുകളിൽ ഐപസാമലഷനിൽ ഉള്ളവപര ഒരു നിശ്ചിത സേയത്തിൽ വിളിച്ചു വിവരങ്ങൾ അമനവഷിമക്കണ്ടതുണ്ട്. ആയതിമലക്ക് വിദയാർത്ഥികളുപടയുും ആയുർ രക്ഷാ ങ്ക മഫാഴ്്സ അുംഗങ്ങളുപടയുും മസവനും യുക്തിസഹോയി ഉ മയാഗിമക്കണ്ടതാണ്.

33. അത്തരത്തിൽ വിദയാർത്ഥികപളയും േറ്റും ഉ മയാഗിക്കുമപാൾ, എന്ത് കാരോണ് പടലിമഫാൺ വഴി വിവര മശഖരണും നടമത്തണ്ടത് എന്നതിനുള്ള ഒരു ോർഗമരഖമയാ പേറിയ മതാതിലുള്ള രിശീലനമോ ജ്ില്ലാ അടിസ്ഥാനത്തിൽ അവർക്കായി ഏർപപ്പടുത്തുന്നത് നന്നാകും. ആയതിമലക്കു മേഖല പറസ്ു ാൺസ് പസല്ലുകളുപട സഹായവും മതടാവുന്നതാണ്.

34. അതാതു ജ്ില്ലകളിൽ ് വർത്തിക്കുന്ന ആയുർമവദ മകാമളജ്ുകപളയും സവകാരയ മേഖലയിപല ആയുമവദ വിദഗ്ധമാമരയും, ആയുർമവദ രുംഗപത്ത വിവിധ സുംഘടനകപളയും സഹകരിപ്പിച്ചുപകാണ്ടു അക്കാദോിക് സേിതികളുണ്ടാക്കി മകാവിഡ് ് വർത്തനങ്ങൾക്കാവശയോയ രിശീലന രി ാടികൾ നിലവിലുള്ള സാഹേരയങ്ങൾക്കനുസൃതോയി ജ്ില്ലാ അടിസ്ഥാനത്തിൽ തപന്ന നടപ്പിലാക്കുകമയാ, ആയതിമലക്കു മേഖല പറസ്ു ാൺസ് പസല്ലുകളുപട സഹായും മതടാവുന്നമതാ ആണ്.

35. ഇതുമ ാപല തപന്ന ആവശയപേങ്കിൽ ോനുഷിക വിഭവമശഷിക്കായി ജ്ില്ലയിപല ആയുർമവദ മകാമളജ്ുകപളമയാ മേഖലാ പറസ്ു ാൺസ് പസല്ലുകപളമയാ ആയുർമവദ രുംഗപത്ത വിവിധ പന്ത് ാഫഷണൽ സുംഘടനകപളമയാ സേീ ിക്കാവുന്നതാണ്.

36. ഐപസാമലഷനിൽ ആയുർമവദ ോികിത്സയിലുള്ളവരുപടയും ുതിയതായി ോികിത്സയിമലപക്കത്തിയവരുപടയും സാോനയോയ വിവരങ്ങൾ ദിനും ് തി എസ്.എ.സി.ആർ.സി. ക്കു ലഭ്യോക്കാൻ വിവിധ വകുപ്പുകൾ ്ശദ്ധിമക്കണ്ടതാണ്.

ുനർജ്ജി, അ്യതും, സവാസ്ഥയും, സുഖായുഷയും എന്നീ ദ്ധതികളുപട റിമപ്പാർട്ടിങ്ങിനായി നിലവിലുള്ള രീതി തുടർന്നാൽ േതിയാകും.

37. സവകാരയ ആയുർമവദ പേഡിക്കൽ മകാളജ്ുകളിലും, ആയുർമവദ സ്ഥാ നങ്ങളിലും ് വർത്തിക്കുന്ന മകാവിഡ് ോികിത്സാമകന്ദ്രങ്ങളിപല ആയുർമവദ ോികിത്സയുപട ഉത്തരവാദിത്തും അവിപട മനാദ്ധൽ ഓഫീസർ ആയി നിയേിക്കപപ്പടുന്ന ഐ.എസ്.എും പേഡിക്കൽ ഓഫീസർക്കായിരിക്കും.

38. മേൽ സ്ഥാ നങ്ങൾക്ക് സമ്മതപേങ്കിൽ, ആ സ്ഥാ നങ്ങളിപല ോനുഷിക വിഭവ മശഷിയും, ആവശയപേങ്കിൽ അുംഗീകൃത ഔഷധങ്ങളും േറ്റും മനാദ്ധൽ ഓഫീസർക്ക് ജ്ില്ലാ പേഡിക്കൽ ഓഫീസറുപട അനുേതിമയാപട ആയുർ രക്ഷ ട്ടുക മഫാള്ളിന്പറ ഭ്ാഗോക്കി ഉ മയാഗപപ്പടുത്താവുന്നതാകുന്നു. േരുന്നുകളുപട നിർമ്മാണ വിതരണ ് വർത്തനങ്ങൾക്കായി ് തുത ആയുർമവദ സ്ഥാ നങ്ങളുപട സഹായും ആവശയപേങ്കിൽ സവീകരിക്കാവുന്നതാണ്.

39. മകാവിഡ് േോികിത്സാ മകന്ദ്രങ്ങളിപലയ്യും വീടുകളിപലയ്യും ഔഷധ നിർമ്മാണ വിതരണത്തിന് ശുേോിതവവ്വും സുരക്ഷിതതവവ്വും ഉറപ്പാക്കുന്ന ഏതു േോാർYങ്ങപളക്കുറിച്ചും ജ്ോില്ലാ അടിസ്ഥാനത്തിൽ തീരുേോോനപേടുക്കാവുന്നതും ആയതിനായി തമേശ്ശ സവയുംഭ്രണ സ്ഥാ നങ്ങളിൽ നിന്നുൾപപ്പപടയുള്ള സഹായ സഹകരണങ്ങൾ സവീകരിക്കാവുന്നതുേോോണ്. ആയുർ രക്ഷ ടാ്ക്ക മഫാ്സ് കാരയക്ഷേേോാക്കുന്നതിലൂപട മേൽ ന്ദ് വർത്തനങ്ങൾ സുഗേേോാക്കാൻ കഴിയ്യും.

40. മകാവിഡ്-19 ന്ദ് വർത്തനങ്ങളുേോായി ബന്ധപപ്പട്ട വിവരമശഖരണും, ആയത് സൂക്ഷിക്കുക, വിലയിരുത്തുക േോുതലായവ അതയന്തും ഉത്തരവാദിത്തമത്താപട പേമയ്യണ്ട ഒന്നാകുന്നു. സുംക്ഷി ്തോയ വിവരങ്ങൾ േോാന്ദ്തോണ് ഓൺലലൻ േോുഖാന്തിരും സുംസ്ഥാനതലത്തിൽ മശഖരിക്കുന്നത്. വിശദോയ വയക്തിഗത വിവരങ്ങൾ മശഖരിക്കുന്നതിനും, സൂക്ഷിക്കുന്നതിനുേോുള്ള അധികാരും മസ്റ്റ് ആയുർമവദ മകാവിഡ്-19 പറസ്പ ോൺസ് പസല്ലിമനാട് മേർന്ന് ന്ദ് വർത്തിക്കുന്ന വകുപ്പുകൾക്കും, സർക്കാർ അനുേോതി ന്ദ് കാരും ന്ദ് ദ്തുത പസൽ േോുേോതലപപ്പടുത്തുന്ന സ്ഥാ നങ്ങൾക്കും വയക്തികൾക്കും േോാന്ദ്തോയിരിക്കും.

41. ഔഷധ നിർമ്മാണ വിതരണവ്വും, വിവരമശഖരണ്ോുൾപപ്പപടയുള്ള തുടർ ന്ദ് വർത്തനങ്ങളുപേല്ലാും തപന്ന സർക്കാരിൽ നിന്നും, ആമരാഗയ വകുപ്പിൽ നിന്നും സേയാസേയങ്ങളിലുണ്ടാകുന്ന േോാർഗനിർമേശങ്ങൾക്കനുസരിച്ചും, മന്ദ്ബക്ക് ദി പേയിൻ നിബന്ധനകൾ ോലിച്ചുപകാണ്ടുേോോകണും.

42. മകാവിഡ് ന്ദ് തിമരാധ ന്ദ് വർത്തനങ്ങളിൽ ഏർപപ്പട്ടിരിക്കുന്ന മധാകൃർേോാരും േോറ്റു ജ്ോീവനക്കാരും ജ്ോില്ലാ മകാർഡിമനറ്റർേോാരും കഴിയുന്നന്ദ്ത മഫാണിൽ ലഭ്യോയിരിക്കാൻ ന്ദ്ശദ്ധിമക്കണ്ടതാണ്

43. മഭ്ഷജ്ോുംം ദ്ധതിയുപട നടത്തിപ്പിനായി േോുേോതലയുള്ള എല്ലാ വകുപ്പുകളിമലയ്യും പേഡിക്കൽ ജ്ോീവനക്കാർ, ോരാപേഡിക്കൽ ജ്ോീവനക്കാർ, നഴ്സുേോാർ, ഫർേോസിസ്റ്റുകൾ തുടങ്ങി രോവധി ജ്ോീവനക്കാരുപട ന്ദ്കിയാത്മകോയ സഹകരണും ദ്ധതി നടത്തിപ്പിന് ഉറപ്പു വരുത്തുന്നത് വിജ്യകരോയ്യും, പ ോതുജ്ജനാ കാര ന്ദ് ദോയ്യും ആയതു േോുമന്നാട്ടുമ ോകുന്നതിനു സഹായകോമയക്കാും.

44. ഇമപ്പാഴുള്ള ഈ പകാമറാണാക്കാലും നൽകുന്ന മവദനകളും രാധീനതകളും സോനതകളില്ലാത്ത കൂട്ടായ്മയിലൂപട നമ്മൾ അതിജ്◌ീവിക്കും. പക്ഷ ഈ ന്ദ് തിസന്ധി ഠന ഗമവഷണ ന്ദ് വർത്തനങ്ങൾക്കുള്ള വലിയ സാധയതകളാണ് തുറന്നു തന്നിരിക്കുന്നത്. ആയതു കൂടി രിഗണിച്ചുപകാണ്ട് മേഖല പസല്ലുകപള കൂടി ഉ മയാഗപപ്പടുത്തിപക്കാണ്ടു ജ്◌ില്ലാ തലത്തിലുള്ള ഠന ഗമവഷണ ന്ദ് വർത്തനങ്ങൾ ശക്തിപപ്പടുത്തുവാനുള്ള ന്ദശേങ്ങൾ നടത്താവുന്നതാണ്.

GOVERNMENT OF KERALA

Abstract

AYUSH Department - COVID-19 - Action Plan outlining the Ayurveda Strategies for prevention, mitigation and rehabilitation of COVID-19 patients in Kerala - modified - orders issued.

AYUSH (A) DEPARTMENT

G.O.(Rt)No.425/2020/AYUSH Dated,Thiruvananthapuram, 18/11/2020

Read 1 G.O.(Rt)No.156/2020/Ayush dated 08/04/2020

2 D.O.Nos.16030/14/2020-NAM dated 09/10/2020 from the Secretary, Ministry of Ayush, Government of India.

3 Letter dated 03/11/2020 from the State Coordinator, SACRC, Department of Ayush.

ORDER

As per the Government order read above Government had approved action plan outlining the Ayurveda strategies for prevention mitigation and rehabilitation of COVID-19 patients in Kerala. As per the D.O. letter read above, 'National Clinical Management Protocol based on Ayurveda and Yoga for management of COVID-19 (NCP-AY)' developed for management of mild COVID-19 has been forwarded to all States. Based on the guidelines in NCP-AY, the State Ayurveda COVID-19 Response Cell (SACRC) submitted its recommendations vide letter read as third paper above.

2. Government have examined the matter in detail. Based on the recommendations of SACRC, Government are pleased to modify the existing Ayurvedic Strategies for the Prevention, Mitigation and Rehabilitation of COVID-19 in Kerala by incorporating the guidelines outlined in National Clinical Management Protocol based on Ayurveda and Yoga endorsed by the Ministry of Ayush, Government of India in the management of mild COVID-19 patients in the state,

subject to following conditions and detailed guidelines for implementation and interventions appended to this order.

i. The patients to be selected accordingly should be those individuals tested positive for COVID-19, with no symptoms or mild symptoms (uncomplicated COVID-19 cases) grouped as **Category A** in the COVID-19 severity classification (approved by the Department of Health and Family Welfare, Government of Kerala), who are either under isolation at their homes or at the designated first or second line COVID-19 treatment centres (CFLTC/CSLTC).

ii. Prior consent of patients is to be taken before management with Ayurveda or Yoga protocol is initiated.

iii. The Ayurveda/ Yoga clinical management strategies for mild and uncomplicated COVID-19 patients (as mentioned in i above) shall be implemented through the approved organisational framework already in place for the execution of various Ayurveda programmes for prevention and mitigation of COVID-19 and rehabilitation of COVID-19 patients in Kerala.

iv.The general guidelines published by the SACRC for the implementation of earlier programmes shall be made applicable for the effective implementation of the current programme too.

(By order of the Governor)
DR.SHARMILA MARY JOSEPH IAS
SECRETARY

To:
The Director, Ayurveda medical Education Department, Trivandrum
The Director, Indian Systems of Medicine Department, Trivandrum
The State Mission Director, National Ayush Mission, Trivandrum
The Director, Health Services, Trivandrum
Revenue (Disaster Management) Department

Home Department
Principal Accountant General (A&E)/Audit, Kerala, Trivandrum
Director, Web & New Media
Stock File/OC

Forwarded /By order

Section Officer

Guidelines for implementation and interventions

1.The assessment of severity of the SARS-CoV-2 infection and the criteria for selection, referral and discharge of the COVID 19 patients shall be strictly in accordance with the guidelines published by the Department of Health and Family Welfare, Government of Kerala (ie.only Patients tested positive for COVID-19, with no or mild symptoms/uncomplicated COVID 19 cases) grouped as Category-A in the COVID-19 severity classification under isolation at their homes or at the designated First or Second-line COVID-19 treatment centres, can be considered for Ayurveda/Yoga clinical management strategies.

2.Ayurveda/ Yoga clinical management strategies as per the protocol shall be administered only to those COVID-19 patients, who satisfy the criteria [as per guideline 1 above] and who have consented to undergo the same. Proper informed consent shall be obtained from patients under home isolation or at CFLTC/CSLTC.

3.The Medical Officers (ISM), responsible for the implementation of the programme, shall ensure strict adherence to such general guidelines issued by the Department of Health and Family Welfare, Kerala and Department of Ayush from time to time. Measures for the administration of the said protocol shall be with the consensus of the health authority in charge of the COVID-19 treatment centre and shall not be contradictory to the existing approved protocol in any manner.

4.The Ayurveda/ Yoga strategies for the clinical management of uncomplicated COVID-19 patients in Kerala shall be done through the Ayur Raksha Clinics (ARC) functioning under the Department of Ayurveda Medical Education (DAME), Department of Indian Systems of Medicine (DISM) and National Ayush Mission (NAM).

5.The Medical Officer in charge of the respective ARC in the area shall be responsible for providing the Ayurveda/ Yoga clinical management measures under the approved strategies for the treatment of the COVID-19 patients under home isolation. The necessary details of every patient shall beentered in the standard case record form and secured in the Ayur Raksha Clinic. A separate register for the same shall also be maintained at the respective ARCs. The Medical Officer of the concerned ARC shall be the custodian of all such documents regarding the implementation of the Ayurvedic/Yoga protocols for COVID-19 patients at home isolation in the area.

6.There shall be separate nodal officers (ISM) deputed by the District Medical Officer (DMO-ISM) and the same shall be intimated to the concerned public health authority, for the smooth implementation of Ayurveda/Y oga clinical management strategies in the existing CFLTC/CSLTC. (If the nodal officer for the COVID-19 care facility is already an ISM doctor, he/she shall be entrusted with the same).

7.In the CFLTC/CSLTC functioning under the Government Ayurveda Medical Colleges under the DAME, the same shall be ensured by the head of the concerned institution.

8.The Ayurveda/ Yoga clinical management strategies for COVID-19 patients in CFLTC/CSLTC shall be administered only through a trained medical officer (ISM) in charge of patient care at the centre.

9.The NCP-AY has permitted the use of locally specific Ayurveda formulations and classical medicines depending on the physician's judgement. Therefore, the treatment protocol proposed by the Task Force constituted by the Government of Kerala incorporated in the 'Report on the Strategies for the Implementation of Ayurveda in the Prevention, Mitigation and Rehabilitation of Covid-

19' as well as the 'Essential Drug List' prepared based on the report shall be judiciously incorporated to the same. The detailed interventional specifications have been annexed.

Ministry of AYUSH

National Clinical Management Protocol based on Ayurveda and Yoga for management of Covid-19

Preamble

The COVID-19 pandemic has created a global health crisis posing an unprecedented public health emergency. The number of deaths and people being infected are increasing daily throughout the globe. This situation is much more severe due to possible devastating situations because of several social and economic factors. Effective management to address this infection is still evolving and attempts are being made to integrate traditional interventions along with standard of care.

Ayurveda and Yoga can certainly play a pivotal role to augment preventive measures provided in the guidelines by Ministry of Health and Family Welfare (MoHFW). The current understanding of COVID-19 indicates that good immune status is vital to prevention and to safeguard from disease progression.

Following three aspects are considered while preparing this protocol:

1. Knowledge from Ayurveda classics and experience from clinical practices
2. Empirical evidences and Biological plausibility
3. Emerging trends of ongoing clinical studies

This consensus document is developed by expert committees from AII India Institute of Ayurveda (AIIA), Delhi, Institute of Post Graduate Training and Research in Ayurved (IPGTRA), Jamnagar, and National Institute of Ayurveda (NIA), Jaipur , Central Council for Research in Ayurveda (CCRAS), Central Council for Research in Yoga and Naturopathy (CCRYN), other national research organizations. This protocol is for management of mild COVID-19. Moderate to Severe COVID-19 individuals may have informed choice of treatment options. All severe cases will be referred.

This protocol and its annexure are approved by the Chairman, Interdisciplinary Committee for inclusion of Ayurveda and Yoga in the management of mild COVID-19 and approved by the empowered committee of the Interdisciplinary AYUSH Research and Development Taskforce on COVID-19, both constituted by the Ministry of AYUSH.

General and Physical measures

1. Follow physical distancing, respiratory and hand hygiene, wear mask
2. Gargle with warm water added with a pinch of turmeric and salt. Water boiled with Triphala (dried fruits of *Emblica officinalis, Terminalia chebula,*

Terminalia bellerica) or Yashtimadhu (*Glycyrrhiza glabra*) also can be used for gargling.

3. Nasal instillation/application of medicated oil (Anu taila or Shadbindu Taila) or plain oil (Sesame or Coconut) or nasal application of cow's ghee (Goghrita) once or twice in a day, especially before going out and after coming back to home.
4. Steam inhalation with Ajwain (*Trachyspermum ammi*) or Pudina (*Mentha spicata*) or Eucalyptus oil once a day
5. Adequate sleep of 6 to 8 hrs.
6. Moderate physical exercises
7. Follow Yoga Protocol for Primary Prevention of COVID-19 (ANNEXURE-1) and Protocol for Post COVID-19 care (including care for COVID-19 patients) (ANNEXURE-2) - as applicable

Dietary measures

1. Use warm water or boiled with herbs like ginger (*Zingiber officinale*) or coriander (*Coriandrum sativum*) or basil (*Ocimum sanctum / Ocimum basilicum*), or cumin (*Cuminum cyminum*) seeds etc., for drinking purpose.
2. Fresh, warm, balanced diet
3. Drink Golden Milk (Half tea spoon Haldi (*Curcuma longa*) powder in 150 ml hot milk) once at night. Avoid in case of indigestion.
4. Drink *Ayush Kadha* or *Kwath* (hot infusion or decoction) once a day.

Specific Measures / Symptom Management

Clinical severity	Medicines*	Doses & Timing
Prophylactic care (high risk population, primary contacts)	*Ashwagandha* (Aqueous extract of *Withania somnifera* IP) or its powder	500 mg extract or 1-3 g powder twice daily with warm water for 15 days or one month or as directed by Ayurveda physician
	Guduchi Ghana vati [Samshamani vati or Giloy Ghana vati having Aqueous extract of *Tinospora cordifolia* IP] or the powder of *Tinospora cordifolia*	500 mg extract or 1-3 g powder twice daily with warm water for 15 days or one month or as directed by Ayurveda physician
	Chyawanaprasha	10 g with warm water / milk once a day

* In addition to these medicines; general and dietary measures are to be followed.

Clinical severity	Clinical Presentation	Medicines*	Doses & Timing
Asymptomatic – COVID-19 Positive	For prevention of disease progression to symptomatic and severe form and to improve recovery rate	*Guduchi Ghana vati* [Samshamani vati or Giloy vati having Aqueous extract of *Tinospora cordifolia* IP] or the powder of *Tinospora cordifolia*	500 mg extract or 1-3 g powder twice daily with warm water for 15 days or one month or as directed by Ayurveda physician
		Guduchi + Pippali (Aqueous extracts *Tinospora cordifolia* IP and *Piper longum* IP)	375 mg twice daily with warm water for 15 days or as directed by Ayurveda physician
		AYUSH 64	500 mg twice daily with warm water for 15 days or as directed by Ayurveda physician

* In addition to these medicines; general and dietary measures are to be followed.

Clinical severity	Clinical Presentation	Clinical Parameters	Medicines*	Doses & Timing
Mild COVID-19 Positive**	Symptomatic management Fever, Headache, Tiredness Dry Cough, Sore throat Nasal congestion	Without evidence of breathlessness or hypoxia (normal situation)	Guduchi + Pippali (Aqueous extracts *Tinospora cordifolia* IP and *Piper longum* IP)	375 mg twice daily with warm water for 15 days or as directed by Ayurveda physician
			AYUSH 64	500 mg twice daily with warm water for 15 days or as directed by Ayurveda physician

***** In addition to these medicines; general and dietary measures are to be followed. Refer ANNEXURE-3 for additional medicines. Physicians have to decide useful formulations from the above or from ANNEXURE-3 or substitutable classical medicines based upon their clinical judgement, suitability, availability and regional preferences. Dose may be adjusted based upon the patient's age, weight, and condition of the disease

** **Guidelines for Ayurveda Practitioners for COVID-19** notified by Ministry of AYUSH may also be referred.

Clinical severity	Clinical Parameters	Medicines*	Doses & Timing
Post COVID Management	Prevention of Post COVID Lung complications like Fibrosis, Fatigue, Mental Health	*Ashwagandha* (Aqueous extract of *Withania somnifera* IP) or its powder	500 mg extract or 1-3 g powder twice daily with warm water for 15 days or one month or as directed by Ayurveda physician
		Chyawanprasha	10 g with warm water / milk once a day
		Rasayana Churna (compound herbal powder made up of equal amounts of *Tinospora cordifolia*, *Emblica officinalis* and *Tribulus terrestris*)	3 g powder twice daily with honey for one month or as directed by Ayurveda physician

* In addition to these medicines; general and dietary measures are to be followed.

* According to physician's discretion. Physicians have to decide useful formulations from the above or substitutable classical medicines based upon their clinical judgement, suitability, availability and regional preferences. Dose may be adjusted based upon the patient's age, weight and condition of the disease.

** **Guidelines for Ayurveda Practitioners for COVID-19** notified by Ministry of AYUSH may also be referred.

References:

1. Guidelines for Ayurveda practitioners for COVID-19; available at https://www.ayush.gov.in/docs/ayurved-guidlines.pdf
2. Guidelines on Clinical Management of COVID-19; Government of India, Ministry of Health & Family Welfare; available at https://www.mohfw.gov.in/pdf/GuidelinesonClinicalManagementofCOVID1912020.pdf
3. Advisory from Ministry of AYUSH for meeting the challenge arising out of spread of corona virus (COVID-19) in India; available at https://www.ayush.gov.in/docs/125.pdf
4. Ayurveda's immunity boosting measures for self-care during COVID-19 crisis; available at https://www.ayush.gov.in/docs/123.pdf
5. Post COVID management protocol of Ministry of Health & Family Welfare; available at https://www.mohfw.gov.in/pdf/PostCOVID13092020.pdf
6. Revised SOP on preventive measures to be followed while conducting examinations to contain spread of COVID-19; available at https://www.mohfw.gov.in/pdf/RevisedSOPonpreventivemeasurestobefollowedwhileconductingexaminationstocontainspreadofCOVID19.pdf

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ANNEXURE - 1

Yoga Protocol for Primary Prevention of COVID- 19

Objectives:

- **To improve respiratory and cardiac efficiency**
- **To reduce stress and anxiety**
- **To enhance immunity**

S. No.	Practices	Name of the Practice	Duration (Minutes)
1	***Prayer***		**1**
2	***Loosening Practices***	Neck Bending	**2**
		Shoulder's movement	**2**
		Trunk Movement	**1**
		Knee Movement	**1**
3	***Standing Asana***	Tadasana	**1**
		Pada-hastasana	**1**
		Ardha Chakraasana	**1**
		Trikonasana	**2**
	Sitting Asana	Ardha Ushtraasana	**1**
		Sasakasana	**1**
		Utthana Mandukasana	**1**
		Simhasana	**1**
		Marjariasana	**1**
		Vakrasana	**2**
	Prone Lying Asana	Makarasana	**1**
		Bhujangasana	**1**
	Supine Lying Asana	Setubandhasana	**1**
		Utthanapadasana	**1**
		Pawana Muktasana	**1**
		Markatasana	**1**
		Shavasana	**2**
4	**Kriya**	Vata Neti 2 rounds (30 secs each with 30 sec relax)	**2**
		Kaphalabhati (2 rounds, 30 strokes each)	**2**
5	***Pranayama***	(i) Nadi Shodhana (5 rounds)	**2**
		(ii) Surya Bhedhana Pranayama (5 rounds)	**2**
		(ii) Ujjayee Pranayama (5 rounds)	**2**
		(iii) Bhramari Pranayama (5 rounds)	**2**
6		**Dhyana**	**5**
7		**Shanti Patha**	**1**
		Total Duration for Each	**45**

- *Advised Jalaneti kriya weekly thrice.*
- *Advised steam inhalation every day or alternative day.*
- *Advised gargling with lukewarm saline water regularly.*

ANNEXURE - 2

Yoga Protocol for Post COVID- 19 care (including care for COVID-19 patients)

Objectives:

- **To improve pulmonary function and lung capacity**
- **To reduce stress and anxiety**
- **To improve Muco-ciliary clearance**

Morning Session (30 Minutes):

S. No	Practices	Name of Practice	Rounds	Duration (in Minutes)
1	Preparatory Practices (In sitting)	Tadasana		6
2		Urdhva Hastottanasana		
3		Uttana Mandukasana		
4		Shoulder rotation	3 rounds	
5		Trunk twisting	3 rounds	
6		Ardha ustrasana		
7		Sasakasana		
8	Breathing Practices	Vaataneti	2 rounds (30 secs/round)	2
9		Kapalabhati	3 rounds (30 secs/round)	2
10		Deep Breathing	10 rounds	2
11	Pranayama Practices	Nadishodhana	10 rounds	6
12		Ujjaayee	10 rounds	3
13		Bhramari	10 rounds	3
14	Meditation	Dhyana	Awareness of breathing or Awareness of Positive thoughts /emotions /actions	6
Total Duration				**30**

Period of exhalation shall be more than the period inhalation, preferably 1:2 (Inhalation: Exhalation).

Evening Session (15 Minutes):

S. No.	Name of the practice	Rounds	Duration (in Minutes)
1	Savasana (Corpse Pose) arms stretched	1	1 minute
2	Abdominal Breathing	10 rounds	2 minutes
3	Thoracic Breathing	10 rounds	2 minutes
4	Clavicular Breathing	10 rounds	2 minutes
5	Deep Breathing (lying down position)	10 rounds	2 minutes
6	Relaxation in Shavasana with awareness on Abdominal breathing		5 minutes
Total Duration			**15 minutes**

- Period of exhalation shall be more than the period inhalation, preferably 1:2 (Inhalation: Exhalation).
- Advised steam inhalation every day or alternative day.
- Advised to gargling with lukewarm saline water regularly.

Note:

- **Loosening Exercises:** Forward/ Backward bends, Spinal twist,
- **Breathing Exercises:** Sectional Breathing, Yogic Breathing, Hands in and Out Breathing, Hands Stretch Breathing Yogic Breathing exercises and asanas found to improve lung volumes and reduce asthma attacks and inflammation in respiratory tract.
- **Breathing and Pranayama:** Vaataneti, Kapalabhathi kriya, Bhastrika pranayama, Nadishodana pranayama for improvement in pulmonary functions.
- **Kriya:** Jalaneti practice to cleanse and decongest the upper airways. Not to be used in dry cough.

ANNEXURE - 3

Management of Mild COVID-19 Cases

Clinical severity	Symptom	Formulation*	Dose*
Mild COVID-19	Fever with Body ache, Headache	Nagaradi Kashaya	20 ml twice a day or as directed by Ayurveda physician
	Cough	Sitopaladi Churna with Honey	2 g thrice daily with Honey or as directed by Ayurveda physician
	Sore throat, Loss of taste	Vyoshadi vati	Chew 1-2 pills as required or as directed by Ayurveda physician
	Fatigue	*Chyawanprasha*	10 g with warm water / milk once a day
	Hypoxia	Vasavaleha	10 g with warm water or as directed by Ayurveda physician
	Diarrhoea	Kutaja Ghana Vati	500 mg - 1 g thrice daily or as directed by Ayurveda physician
	Breathlessness	Kanakasava	10 ml with equal amount of water twice a day or as directed by Ayurveda physician

* In addition to these medicines; general and dietary measures are to be followed.
* According to physician's discretion. Physicians have to decide useful formulations from the above or substitutable classical medicines based upon their clinical judgement, suitability, availability and regional preferences. Dose may be adjusted based upon the patient's age, weight, and condition of the disease.
* **Guidelines for Ayurveda Practitioners for COVID-19** notified by Ministry of AYUSH may also be referred.

This is a general advisory. Attending physicians need to use their discretion to select the drugs based upon the stage of the disease, symptom complex and availability of the medicines. The recommended formulations in this attempt are in addition to standard approaches of care and prevention as well as other Ayurvedic approaches recommended for prevention earlier. Moderate to Severe COVID-19 individuals may have informed choice of treatment options.

AYURVEDA TREATMENT PROTOCOL FOR COVID-19

State Ayurveda Covid-19 Response Cell, Kerala

Addendum to the National Clinical Management Protocol Based on Ayurveda and Yoga for the Management of COVID-19

For Asymptomatic Covid-19 Positive Cases

Sl. No.	Yoga	Criteria
1.	**Samshamani Vati with Pippali Choornam**	Asymptomatic conditions, health protective
2.	**Guluchi Choornam with Pippali Choornam**	Asymptomatic conditions, health protective, also for Vata Kapha Peenasadi Upadrava vyadhis, Advisable in patients with comorbidities such as Diabetes.
3.	**Indukantham Kashayam**	Asymptomatic conditions, health protective, also for Vata Kapha Peenasadi Upadrava vyadhis. Suitable for patients developing symptoms after being asymptomatic.
4.	**Triphala Choornam with suitable Anupanam**	For Asymptomatic conditions associated with Comorbidities such as Diabetes. Anulomana. Useful gargling with salt for sore throat.
5.	**Nisha Choornam with milk** **(Dose – 750 mg)**	For Asymptomatic conditions, as a general tonic.

For Mild Symptomatic Covid-19 Positive Cases

Kashayam

Sl. No.	Yoga	Criteria
1.	**Dasamoolakatuthrayam Kashayam**	Vata Kapha conditions, Swasa, Kasa, Vata Kapha type of Pain, Anga marddam, Peenasa, Gandhaajnanam, Asyavairasyam, Nasarodham
2.	**Pathyakusthumbaryadi Kashayam – Anupanam: Honey or Hingu**	Kapha Vata Jwara associated with symptoms affecting Prana- annavaha srotas including Kantaruja. Caution – Avoid Pitta kopa
3.	**Amritotharam Kashayam – Anupanam: Sugar or Suitable Tablet**	Advisable in Sannipatha Jwara, Sandhisoola Deepana, Pachana, Anulomana. More Suitable in Jwara devoid of Swasa and Kasa.
4.	**Elakanadi Kashayam – Anupanam: Sugar, Jeeraka choornam, Laksha choornam, Madhuka choornam along with Honey**	Swasa – Kasa similar to Rajayakshma. Samana. Also suitable in Pitta avastha, Kantaruja, Srama swasa
5.	**Patolakaturohinyadi Kashayam – Anupanam: Honey or suitable anupanam**	Pitta or Kapha Pitta Jwara, Vishahara. So suitable in Swasa, Kasa, Nausea, Vomiting associated with Jwara
6.	**Drakshadi Kashayam – Anupanam: Honey, Sugar or Laja** **Also administered as Phantam or Seeta kashayam**	Vata pitta jwara, Rakta prasadanam, Manovibhramam, Tandra, Anidra, Bhrama, Murcha,

		Chharddi, Daha, Kamala, Sandhisoola
7.	**Bharngyadi Kashayam – Anupanam: with suitable gulika**	Sannipatha jwara, Vishama jwara, Aganthuka jwara, Sheeta jwara, Swasa, Kasa, Parswasoola, Tandra, Sirasoola, Agnimandya, Parswaruja
8.	**Dasamoolam Kashayam – Anupanam: Madhu or with suitable gulika**	Kapha Vata Jwara, Swasa, Kasa Parswasoola, Tandra, Agnimandya
9.	**Vyaghryadi Kashayam – Anupanam: Pippali Choornam**	Vata Kapha Jwara, Swasa, Kasa, Peenasa, All types of Soola
10.	**Pathyashadangam Kashayam – Anupanam: Guda aka Pathyakshadhatryadi Kashayam**	All types of Sirasoola, Agnimandya, Swasa, Anulomana
11.	**Indukantham Kashayam – Anupanam: Alone or Pippali Choornam or Guluchi Choornam**	Jwara, Swasa, Kasa, Soola, Agnimandya, Aruchi, Tandra, Vatanulomana
12.	**Nayopayam Kashayam**	Swasa, Hikka, Vatanulomana, Agnimandya, Deepana
13.	**Nishakathakadi Kashayam**	Tandra, Klama, Agnimandya in Diabetes patients
14.	**Guluchyadi Kashayam (Also used as panajalam)**	Pitta Kapha jwara, Charddi, Daha, Trishna, Agnimandya. Can be administered in patients with comorbidities like Diabetes
15.	**Shadangam Kashayam (Panajalam)**	In all types of Jwara, Tandra, Murcha, Pachana, Trishna

Note: Kashayam or Kashaya choornam, Kashaya Sukshma Choornam or Kashayam tablet can be administered.

Method of Preparation & Dose (Adults)

- **Kashaya Choornam** – 48 g Kashaya Choornam boiled in 768 ml of water and reduced to 96 ml and 48 ml twice daily ideally in empty stomach or 1 hour before food.
- **Kashaya Sukshma Choornam** – Put 10 g powder in 2 glass (240 ml) of boiling water and boil for at least 10 seconds. Then take it away from fire and keep it to settle. Filter it and take 90 ml twice daily either in empty stomach or 1 hour before food.
- **Kashayam (concentrated/bottled)** – 15 -20 ml kashayam mixed with 60 ml boiled and cooled water. The same amount is administered twice daily in empty stomach or one hour before food.
- **Phantam** – 10 g of Sukshma choornam is added to 100 ml boilig water and kept aside for settling. It is then filtered and used. The dose is 48 ml (not divided) twice daily in empty stomach 1 hour before food.
- **Seetha Kashayam** – 10 g of Sukshma choornma is added to 100 ml boiled and cooled water and kept overnight. The dose is 48 ml twice daily (not divided) in empty stomach 1 hour before food.
- **Paanajalam** – 10 g choornam is put in 1 litre of boiling water and is taken as drinking water.

  NB: The medicines may be administered once, twice, thrice, 6^{th} hourly or SOS according to the rationale of the physician or health condition, sareerabala and prakriti of the patient. Adjust the dose to half or to suitable level in case of children. For known comorbidities, select the kashayas and anupanas according to the rationale of the physician. Sugar may be avoided or reduced in highly Diabetic patients.

Choornam

Sl. No.	Yoga	Criteria/Symptom
1.	**Sudarsana Choornam – Anupanam: Boiled and Cooled water**	Sarva jwara, Swasa, Kasa, Tandra, Sandhisoola, Parswasoola, Pandu, Kamala
2.	**Abhaya Choornam – Anupanam: Boiled and colled water, Sundi Choornam, Saindhavam or in combinations with other choornams**	Agnimandya, Asyavairasyam, Virechanam

3.	**Aswagandha Choornam – with milk, water or suitable anupanam**	Anidra, Murcha, Bhrama, Tandra, Glani,
4.	**Guluchi Choornam – with warm water or with suitable kashayam**	Deepana, Pachana, Jwara hara, Can be applied in patients with comorbidities such as Diabetes, Chronic Renal failure
5.	**Talisapathradi Choornam – alone or with Honey, warm water**	Kasa, Swasa, Aruchi, Charddi, Jwara, Pandu, Atisara, Parswasoola, Hritsoola, Vatanulomana
6.	**Triphala Choornam – with warm water or suitable anupanam**	Vatanulomana, Sirasoola, Malabandham
7.	**Pippali Choornam – with honey or in combinations with other choornam (Maximum dose -750 mg)**	Deepana, Pachana, Jwara, Swasa, Kasa, Vata Kapha conditions
8.	**Yashti Choornam – with honey, warm water or suitable kashayam**	Agni mandya, Amasaya soola, Amlapitta, Vata pitta or Pitta conditions
9.	**Maricha Choornam – with honey, warm water or suitable kashayam (Maximum dose -750 mg)**	Deepana, Pachana, Soola hara, Agnimandya, Swasa, Kasa
10.	**Trikatu Choornam – with honey, warm water or suitable kashayam**	Pandu, Soola, Swasa, Kasa, Agnimandya, Deepana, Pachana, Peenasa, Vata kapha conditions
11.	**Nisha Choornam – with milk or with Amalaki choornam (Maximum dose -750 mg)**	Visha hara, Swasa, Kasa,, General Health care
12.	**Sankha pushpi Choornam – with Honey or milk (Maximum dose - 2 g)**	Anidra, Alpanidra, Bhrama, Murcha, Glani, Psychological problems

13.	**Gokshura Choornam – with water, honey or milk**	Sopham, Paittika Mutrakrichram, Mutralam, Hypertension
14.	**Sitopaladi Choornam – with honey, ghee**	Swasa, Kasa, Daha
15.	**Dadimashtaka Choornam – with buttermilk or warm water**	Atisara, Grahani, Kasa, Swasa, Peenasa, Agnimandya, Aruchi
16.	**Haridra Khandam – with warm water**	Peenasa, Kshavathu, Srama swasa, Nasarodha
17.	**Other Suggestions - Choornas of Ajamoda, Chandana, Chitraka, Jeeraka, Kantakari, Kustha, Kutaja, Mustha, Nagakesara, Prishniparni, Punarnava, Amalaki, Satavari, Sundi, Vacha, Vibheetaki, Vidanga may be selected with suitable anupanam.** **Eg: Mustha choornam with water or honey in Atisaram,** **Sundi or Ardraka kalka with Guda in Sopham**	According to the rationale of the physician and condition of the patient

Note – General Dose – 3-5 g twice or thrice daily. The medicines for Swasa, Kasa conditions may be given frequently or SOS according to the condition of the patient. The dose may be increased or reduced according to the condition, sareerabala and prakriti of the patient.

Gulika/Tablet/Vatakam

Sl. No.	Yoga	Criteria
1.	**Vilwadi Gulika – with warm water, honey or suitable kashaya**	Jwara, Visha hara, Ajeerna, Atisara
2.	**Sudarsana Gulika – Anupanam: Boiled and Cooled water**	Sarva jwara, Swasa, Kasa, Tandra, Sandhisoola, Parswasoola, Pandu, Kamala
3.	**Kutaja Ghan Vati (Dose - 500 mg- 1g)**	Atisara, Agnimandya, Jwara

4.	**Vyoshadi Vatakam - alone or with honey**	Peenasa, Swasa, Kasa, Aruchi, Ajeerna, Nasarodha
5.	**Gopichandanadi Gulika – with Jeeraka kashayam or Breast milk for children and infants** **(Dose – 1 ratti or 125 mg in children)**	Jwara, Kasa, Swasa, Ajeerna, Bhrama, Murcha
6.	**Dhanwantharam Gulika**	Swasa, Kasa, Hikka, Charddi, Kapha praseka, Anidra, Vatanulomana
7.	**Chandraprabha Gulika**	Kasa, Swasa, Aruchi, Mutra rogas, Pandu, Kamala and also comorbidities like Diabetes

Note – The general dose is 1-2 tablets twice or thrice daily. Vataka – 5-10g twice daily. The dose may be increased or reduced according to the condition of the patient.

Arishtam/Asavam

Sl. No.	Yoga	Criteria
1.	**Amritharishtam**	Sarva Jwara, Swasa, Kasa, Agnimandya, Aruchi
2.	**Abhayarishtam**	Jwara, Agnimandya, Ajeerna, Charddi, Pandu
3.	**Aswagandharishtam**	Murcha, Agnimandya, Anidra, Sandhisoola
4.	**Draksharishtam**	Kasa, Swasa, Tandra, Kanta ruja, Malabandham

Note – General Dose – 25-30 ml twice or thrice daily after food. The dose may be reduced to half in children or given mixed with water. Not advisable to children below 2 years of age.

Lehyam/Rasayanam

Sl. No.	Yoga	Criteria
1.	**Dasamoola Rasayanam**	Swasa, Kasa (Productive), Vata Kapha type. Srama swasa, Hidhma, Kshayam
2.	**Agastya Rasayanam**	Kasa, Swasa including comorbidities like Bronchial asthma, and Cardiac problems, Vishama jwara, Hikka Peenasa, Aruchi, Grahani, Arsas, Agnimandya, General debility
3.	**Chyavanaprasham**	Swasa, Kasa, Sosha, Agnimandya, Glani, Tandra, Mutrakrichra, Swarasada, Aruchi, Gandha ajnanam
4.	**Pippali Rasayanam**	Swasa, Kasa, Sandhi soola, Tandra, Deepana, Pachana, Aruchi, Amavastha

Note – The General dose of Lehya is 5-10 g twice daily along with warm water or milk. The physicians shall take care of the amavastha, agnibala, sareerabala, and prakriti of the patient and also comorbidities before administering rasayanas. The dose shall be reduced in children.

Ghritam

Sl. No.	Yoga	Criteria
1.	**Indukantham Ghritam**	Jwara, Swasa, Kasa, Soola, Agnimandya, Aruchi, Tandra, Vatanulomana
2.	**Amrithaprasham Ghritam**	Kasa, Swasa, Kshaya, Vatanulomana, Tandra, Klama, Sandhisoola
3.	**Brihat Chhagala Ghritam**	Sandhisoola, Tandra, Swasa, Kasa, Kshaya

Note – The General dose is 3-5 g twice daily along with warm water. The physician shall assess amavastha, dosha avastha, sareerabala, agnibala, rogavastha and prakriti of the patient before administering ghrita preparations. Strict pathya shall be observed during the administration.

COVID-19 CASE SHEET

Prepared by: **State Ayurveda Covid-19 Response Cell (SACRC)**

Name of the Instituion: .....

Name: .....

Age:..... Sex: Male ☐ Female ☐ Others ☐

Address:.....

Phone No.:..... Regn. No.....

Parent/Guardian..... Marital Status: Single ☐ Married ☐

Occupation:..... Socioeconomic status – Lower ☐ Middle ☐ Higher ☐

District: ☐ TVM ☐ KLM ☐ PTA ☐ ALP ☐ KTM ☐ IDK ☐ EKM
☐ TSR ☐ PKD ☐ MLP ☐ KKD ☐ WYN ☐ KNR ☐ KSD

DOA:..... DOD : .....

Name of the Person Entering the Data : .....

Mobile No. of the person entering the data : .....

Confirmed Covid-19 Positive on/Tested on : .....

Method used to Confirm Covid-19 positive : ☐ NAAT (Rt-PCR) ☐ RAT

Testing Centre : ☐ Government ☐ Private Lab

Condition of the patient : ☐ Asymptomatic ☐ Mild symptomatic

Nature of the Centre : ☐ CFLTC ☐ SLTC ☐ Home isolation

Symptoms (Pl tick the relevant ones):

- ☐ Jwara (Fever)
- ☐ Kasam (Cough)
- ☐ Kandharuja (Sore throat)
- ☐ Sirasoola (Headache)
- ☐ Nasarodham (Nasal congestion)
- ☐ Sramaswasa (Shortness of breath)
- ☐ Angamarddam (Body aches)
- ☐ Gandhaajnanam (Anosmia)
- ☐ Asyavairasya (Anorexia)
- ☐ Anidra (Insomnia)
- ☐ Atisaram (Diarrhoea)
- ☐ Hypoxia
- ☐ Sandhisoola (Arthralgia)

Other Presenting Complaints with Duration:

History of Presenting Complaints:

History of Previous illness :

Comorbidities, if any	:	☐	Chronic Liver Disease	:	☐
No comorbidity	:	☐	Malignancy (within 5 years)	:	☐
Data not available	:	☐	Tuberculosis (Active/Passive)	:	☐
Diabetes Mellitus	:	☐	COPD	:	☐
Hypertension	:	☐	Bronchial Asthma	:	☐
Coronary Artery Disease	:	☐	Dementia	:	☐
Atrial Fibrillation	:	☐	Pregnancy	:	☐
Chronic Renal Failure	:	☐	Others	:	

Specify whether Lactating mother : ☐ Yes ☐ No

Details of currently taking medicines, if any:

Personal History : Bowel: Appetite: Micturition: Sleep:

Vital Signs	**Value**
Temperature (in Farenheit)	
Pulse Rate	
Respiratory Rate	
Blood Pressure	
Oxygen saturation (SpO2)	

General Examination:

☐ Conscious ☐ Oriented ☐ Unconscious

Nutritional Screening: Body Wt: ☐ Malnourished ☐ Moderately nourished ☐ Well nourished

Weight loss if any in the past 6 months……..

Systemic Examination:

Investigations, if any and their findings:

Next Testing Date:

Ayurvedic assessment - Therapeutic indicators :

Dosha Dushya Srotas

Prakriti Agni Shareerabala

Assessment chart

Indicator	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Dosha										
Agni										
Ama										

Write the day / interval in the day row, V for vata, P for pitha and K for kapha.
S for samagni, M for mandagni, T for teekshnagni . Sa for sama , Na for nirama

Details of Medication:

Sl. No.	Name of the medicine	Dose	a/c or p/c*	Time of administration	Remarks
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					

*a/c = ante cibum (before meals) p/c = post cibum (after meals)

Other Medicines if any…….....…….

Pathya /Apathya:

Vitals Chart

Date	Temperature	B.P.	SpO_2	Pulse rate	Others (FBS, PPBS etc.)

Nurses Record

Medicines	Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM

Symptom Analysis Chart

Symptom	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10

Course in the Hospital:

Discussion:

Referral details if done:

Tested Negative on:

Remarks:

Discharge Summary

DOA: DOD:

COVID-19 Positive Test Date: COVID -19 Negative Test Date

Category: ☐ Asymptomatic ☐ Mild symptomatic

Follow up medicines

Sl. No.	Medicines	Dose	a/c or p/c*	Time of administration	Duration

Signature of the Physician

GENERAL CONSENT

Date……

Name…….....……..Age…….Sex……

Address……

.....

Phone:…….....

I…….....……..do hereby agree to undergo the Ayurveda consultation and examination by the doctors in this hospital/ in home isolation for Covid-19 care and also agree to undergo treatments intimated by them. I also agree to undergo any investigations prescribed by the doctors in this hospital.

Signature

സമ്മത പത്രം

പേര്..... വയസ്സ്..... ലിംഗം.....

തീയതി & സമയം..... ഫോൺ നമ്പർ.....

..... എന്ന ഞാൻ, കോവിഡ് 19 രോഗത്തിന് ഈ ആശുപത്രിയിലെ / വീട്ടു നിയന്ത്രണത്തിൽ ഡോക്ടർമാരുടെ പരിശോധനയ്ക്കും ആയതിൽ പ്രകാരമുള്ള ആയുർവേദ ചികിത്സകൾക്കും വിധേയനാകുവാൻ സന്നദ്ധമാണെന്ന് ഇതിനാൽ സമ്മതിച്ചുകൊള്ളുന്നു. ഡോക്ടറുടെ നിർദ്ദേശാനുസരണമുള്ള രോഗനിർണ്ണയ പരിശോധനകൾക്കും വിധേയനാകുവാൻ പൂർണ സമ്മതമാണെന്ന് അറിയിക്കുന്നു.

ഒപ്പ്

COVID-19 (nCorona) Virus Outbreak Control and Prevention State Cell
Health & Family Welfare Department
Government of Kerala

ADVISORY ON HOME CARE OF ASYMPTOMATIC COVID-19 POSITIVE PATIENTS

No.31/F2/2020 Health – 7th August 2020

1. Introduction

The COVID-19 pandemic is pacing throughout the world, India as well as in Kerala. Kerala state has prepared and implemented comprehensive response measures to manage the pandemic with the focus on supressing the transmission and reduce mortality. In order to meet the large health care needs of COVID patients and the potential surge of patients and its impact on the health system newer strategies have to be adopted. A large spectrum of the disease is made up of asymptomatic cases while some patients may be detected at their pre-symptomatic phase also. The state policy so far has been to provide hospitalised care for these asymptomatic positive cases at CFLTCs.

Many asymptomatic patients are requesting to allow them to be at home and they would abide by all the health advisory. The requests of people have been examined at Government level. The Expert Group also recommended to do the necessary modification by allowing asymptomatic patients to stay at home. Considering the requests from the patients, the department is planning to permit home based care of these asymptomatic positive patients for those who opt for it and who satisfy the criteria. However, robust support systems are required for permitting patients to get treated at home, subject to the satisfaction of these conditions, the Asymptomatic patient shall be allowed to be at home for treatment period till discharged as per the discharge policy.

II. Decision for operationalization of Home care

When to initiate the SOP for home-based management of asymptomatic COVID patients shall be decided by the district administration. Following points shall be considered before initiating such decision.

a. Study the epidemic in the district to make it district specific decision

b. As per the plan of putting up CFLTCs, all CFLTCs of stage I, II and stage III should be in place in the district

c. Call centre at the district should be fully functional

d. Telemedicine at the district should be fully functional

e. Transportation availability in decentralised way should be functional

f. 70% bed occupied in CFLTC shall be the trigger for deciding to manage all the asymptomatic COVID positive patients at home, because at that point of epidemic, the system will have to take care of the symptomatic patients.

SOP for Home based Management of asymptomatic COVID positive patients

The strategy is explained in the info diagram below:

Asymptomatic	No Symptoms
A	Mild sore throat / cough / rhinitis /diarrhea
B	Fever and/or severe sore throat / cough /diarrhea OR Category-A withany one of • Lung/ heart / liver/ kidney / neurological disease/ Hypertension/haematological disorders/ uncontrolled diabetes/ cancer /HIV- AIDS/ Cardiovascular disease • On long term steroids /immunosuppressive drugs. • Pregnant lady • Age –more than 60 years.
C	• Breathlessness, chest pain, drowsiness, fall in blood pressure, haemoptysis, cyanosis [red flag signs] • Children with ILI (influenza like illness) with ***red flag signs*** (Somnolence, high/persistent fever, inability to feed well, convulsions, dyspnoea /respiratory distress, etc). • Worsening of underlying chronic conditions.

Asymptomatic | Category A | Category B | Category C

Home care:
room isolation at home*

Institutional Care

*clinical and social eligibility criteria to be satisfied

2. Period of Home care

The period of home care is as per the existing discharge guidelines issued.

3. Clinical Eligibility Criteria for Home Care

The clinical criteria should be assessed by a treating Physician/Medical officer from the local health authorities

The following **clinical criteria** are to be met to be eligible for permitting home care:

a. The patient is **COVID-19 positive** by any of the confirmatory tests

b. The patient is **asymptomatic**

c. The patient **does not have major comorbidities** or uncontrolled comorbidity or any vulnerable conditions (Pregnancy, immediate postnatal, immunocompromised states)

d. **Psychologically** fit and **willing** for room isolation

e. If the patient is a child less than 12 years old then a parent/guardian/care giver may be allowed to jointly go into room isolation. A third person shall become the care taker.

4. Social Eligibility Criteria

The following social criteria has to be met by the patient and the family as assessed by the local self-government and health authorities.

a. The house has adequate road access and communication facilities (land or mobile connection)

b. Facility for room isolation with attached bathroom. The room should be well ventilated.

c. The person or the materials used by the COVID positive person shall never come in contact with any vulnerable individual at home. It is advised that all vulnerable individuals in the family (elderly, people with co-morbidity) shall be moved to a separate house in the neighbourhood or family. Healthy members of the family who have already been exposed may choose to continue in the same household provided further

exposure with the COVID-19 confirmed patient can be avoided.

d. An adult healthy and willing care taker should be identified by the family for providing care to the patient observing all safety precautions as per quarantine guidelines.

e. The family has adequate community and social support.

The Primary Health Care team from the local health institution shall assess the housing conditions and facilities for the room quarantine and ensure that all the social eligibility criteria are met. Only people who met all the clinical and social eligibility criteria shall be permitted for home-based care.

5. Self-Care For COVID-19 Positive Asymptomatic Patients

A three-level daily monitoring mechanism is to be followed as per the annexure-2. The patients in home care are to observe the following self-care practices:

a. Take balanced diet

b. Take adequate warm water and fluids.

c. Take adequate rest and sleep for 7-8 hours in the night

d. Daily **self-monitoring for symptoms and red flag signs**; fever, cough, fatigue, anorexia, shortness of breath, bluish lips or nose, myalgia, sore throat, loss of smell or taste, diarrhoea, nausea, vomiting.

e. **Red Flag signs** are:

 Red flag signs	Altered sensorium, breathlessness, Chest pain, Drowsiness, Haemoptysis, excessive fatiguability, syncope, palpitation

f. Daily **self-monitoring of oxygen saturation (SpO2)** with Finger Pulse **Oximeter:** The patient must rest by sitting for five minutes and use the finger pulse oximeter on any one of the fingers in the either hand. Preferably the index finger may be used for uniformity and consistency. If the **SpO2 value is less than or**

equal to 94% or the **pulse rate more than 90 beats per minute** while at rest then the inform the local health authorities.

g. The patient shall maintain a note or diary of the daily symptoms and SpO2 observations.

h. The patient should promptly respond to the tele-consultation and daily telephonic calls made by the health authorities.

i. The patient and the care giver should wear protective three-layer masks while interacting for exchange of food and other items and maintain safe distancing.

j. The patient should not use other areas of the house for eating, sleeping or socialization with the family members staying within the house.

k. The patient should not share common household objects like TV remotes, mobile phones, plates, cups and other materials

l. Patients should wash their clothes themselves in the bathroom. Once washed can be given to the care giver for drying. Clean and disinfect frequently touched surfaces in the room daily.

m. Visitors to the house should not be allowed.

n. Observe cough and sneeze hygiene.

o. Practice frequent hand washing with soap and water or alcohol-based hand sanitiser.

p. General waste generated must be burned outside. Biodegradable waste should be buried under the soil. Materials that should not be burned should be disinfected with bleach solution and disposed of adequately.

6. Teleconsultation and Daily Monitoring

The patient should be telephonically followed up by the local health team for any symptoms. A line list should be maintained with daily updating for onset of symptoms with the following check list**(annexure-1)** with signature by Medical Officer every day. The teleconsultation should be probing into onset of any symptoms, SpO2 value, Psychological appraisal and social issues. Psychological issues should be informed to the DMHP staff. Social issues should be informed to the concerned LSG for necessary action.

7. Follow-Up Action if Symptoms Develop or in case of hypoxemia or tachycardia

If the patient develops symptoms, hypoxemia or tachycardia, she/he should be transported to the nearest CFLTC or to the COVID Hospital depending on the severity (Category A, B, C) Refer-Annexure-2.

The transportation should be via a specially designed double chambered vehicle and should not be delayed. The treatment protocol should be as per the existing guidelines.

8. Proactive Care of Vulnerable People at Home

Majority of the asymptomatic patients in room isolation may be having family members from vulnerable groups at home. They are likely to be high risk primary contacts by the time diagnosis is ascertained in the patient. Such homes with exposed vulnerable population should be monitored closely by the local primary health care team-(annexure-3) This could be done in either of the following ways

1. Three level monitoring mechanism should be extended to vulnerable population at home also.

2. JPHN/ASHA/Volunteer can visit such households every third day to monitor the vulnerable population using a checklist.

Refer annexure-3 for the info diagram.

Principal Secretary

Annexure-1

Govt. of Kerala

Teleconsultation and daily monitoring case sheet for COVID-19 positive asymptomatic patients while on home care

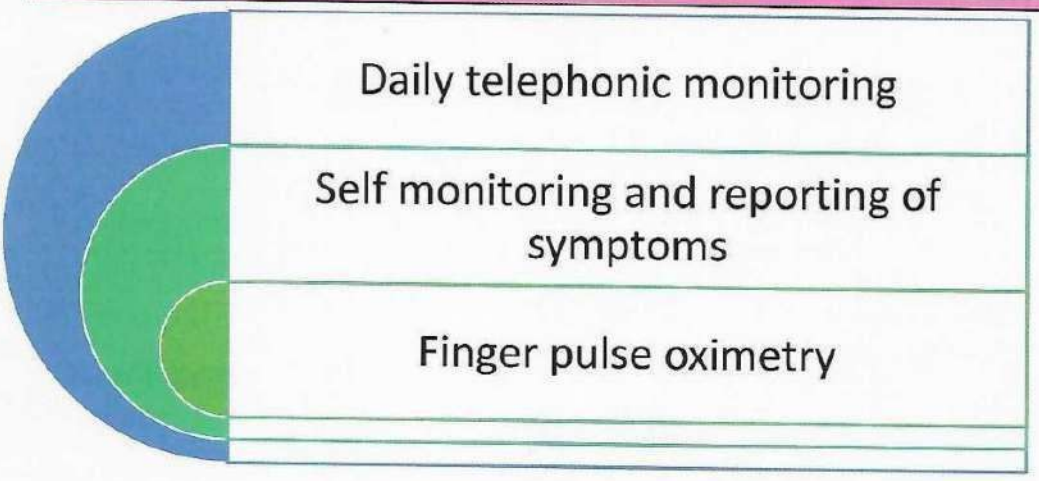
Name:..... Age..... Gender.....
LSG:..... Ward:.....

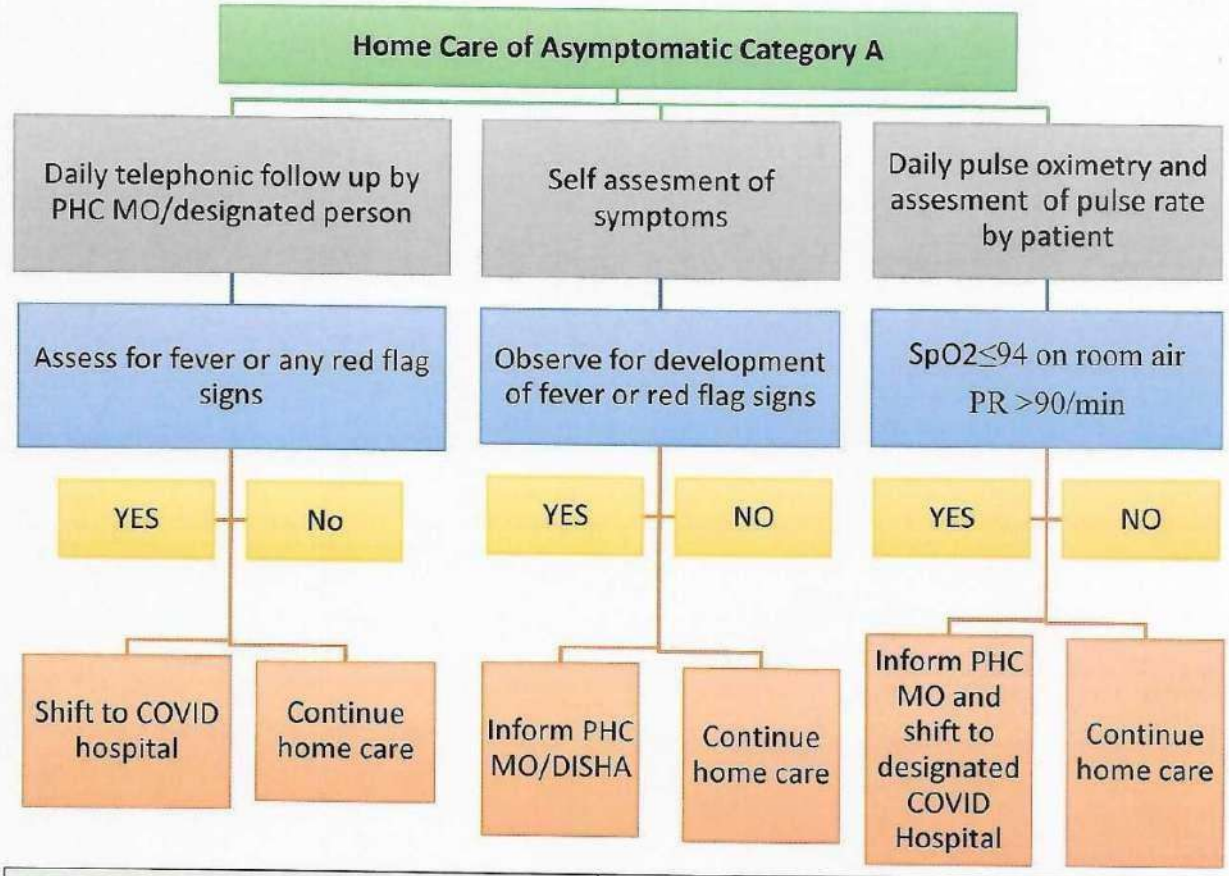
Date	Any Symptoms or RED Flag signs YES/NO	Finger Pulse Oximetry SpO2- Pulse-	Psychological appraisal: Adequate- YES/NO	Social issues: YES/NO	Signature of Medical Officer
dd/mm/yy		SpO2- Pulse-			
dd/mm/yy		SpO2- Pulse-			
dd/mm/yy		SpO2- Pulse-			
dd/mm/yy		SpO2- Pulse-			
dd/mm/yy		SpO2- Pulse-			
dd/m		SpO2- Pulse-			

m/ yy					
dd/ m m/ yy		SpO2- Pulse-			
dd/ m m/ yyy y		SpO2- Pulse-			
dd/ m m/ yyy y		SpO2- Pulse-			
dd/ m m/ yyy y		SpO2- Pulse-			

Annexure-2

Three level monitoring mechanism for asymptomatic COVID 19 confirmed patients in home care





Red flag signs	Altered sensorium, breathlessness, Chest pain, Drowsiness, Haemoptysis, excessive fatiguability, syncope, palpitation

Annexure-3

PROACTIVE MONITORING FRAMEWORK FOR HOME CARE OF ASYMPTOMATIC COVID 19 PATIENTS WITH VULNERABLE POPULATION AT HOME

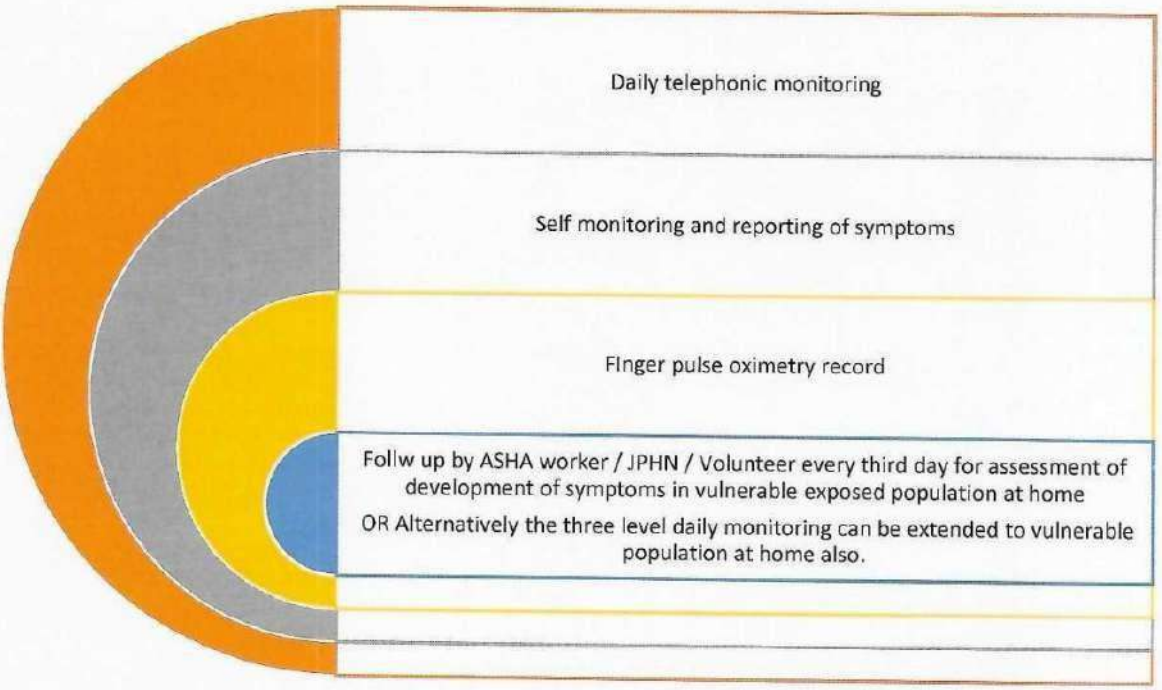
Majority of the asymptomatic patients in room isolation may be having family members from vulnerable groups at home. They are likely to be high risk primary contacts by the time diagnosis is ascertained in the patient. Such homes with exposed vulnerable population should be considered as a microcluster for monitoring.

This proactive monitoring may be done in 2 ways

1. Three level monitoring mechanism should be extended to vulnerable population at home also.
2. JPHN/ASHA/Volunteer can visit such households every third day to monitor the vulnerable population using a checklist.

All the exposed members of the household should be in quarantine for 14 days from the last day of contact with COVID-19 confirmed patient at home.

LSG should ensure supply of essential commodities to the households.



COVID-19 Outbreak Control and Prevention State Cell

Health & Family Welfare Department

Government of Kerala

ADVISORY WITH REGARD TO RE- TESTING OF PATIENTS WHO HAVE BEEN CURED OF COVID 19.

No 31/ F2/2020/ H&FWD- 19th November 2020

Background

It is brought to the notice by the field officers that COVID cured patients are subjected to RTPCR retests after discharge and upon getting positive results confusion prevails regarding the positivity status of the patients.

The following guidelines are issued to clarify certain aspects regarding COVID cured patients.

1. A subset of patients with laboratory-confirmed SARS-CoV-2 infection have been identified to be PCR-positive over prolonged periods of time after infection and clinical recovery.
2. The duration of viral RNA detection by NAAT is variable. Viral RNA shedding has been observed for as long as 104 days from symptom onset in upper respiratory tract specimens. A subset of patients has intermittent negative PCR tests. This occurs when the virus concentration in the sampled material becomes low or is around the detection limit of a test . Intermittent RNA shedding also is described in patients who have recovered.
3. It is important to note that the identification of SARS-CoV-2 RNA through PCR (i.e. viral RNA shedding) does not equate to the presence of viable, infectious virus within a patient. In mild cases replication competent virus cannot be cultured after 10 days and in moderate to severe cases, replication competent virus cannot be cultured after 15 to 20 days from symptom onset. So NAAT positivity beyond this time frame in

asymptomatic recovered patients should not be considered as re-infection within the next 3 months.

ROLE OF VIRAL DIAGNOSTIC TESTING IN PATIENTS WHO HAVE BEEN DECLARED CURED OF COVID -19

1. For persons previously declared cured of COVID-19 who remain asymptomatic after recovery, retesting is not recommended within 3 months of recovery.
2. There are situations where, retesting is being done in asymptomatic patients within 3 months of recovery. The situations include prior to surgery, prior to election duty, prior to dialysis etc. If at all retesting is performed in asymptomatic persons within 3 months of recovery from COVID 19 , the test performed should be rapid antigen test. In case NAAT is done, positivity in an asymptomatic individual who has recovered from COVID 19 should be taken only as RNA shedding and should not be equated with infectivity. **No surgical procedures should be deferred based on a positive NAAT result in an asymptomatic patient who has recovered from COVID 19.**
3. For persons who develop new symptoms consistent with COVID-19 within 3 months of recovery and if an alternative etiology cannot be identified , then the person may warrant retesting especially if the symptoms develop within 14 days after close contact with an infected person. Persons being evaluated for reinfection with SARS-CoV-2 should be isolated under recommended precautions while undergoing evaluation. In such situations, the clinical profile and epidemiological link should be carefully assessed while interpreting a positive NAAT result.

4. Serologic testing should not be used to establish the presence or absence of SARS-CoV 2 infection or re-infection.

References

1.Duration of isolation and precautions for adults with COVID 19-CDC Oct 2020

2.Reinfection with SARS-CoV 2 :considerations for public health response : ECDC

Principal Secretary

COVID 19 (nCorona) Virus Outbreak Control and Prevention State Cell

Health & Family Welfare Department

Government of Kerala

COVID-19 TREATMENT GUIDELINES FOR KERALA STATE

Ref No 31/F2/2020/H&FW dated 15th August 2020

As per the reference 31/F2/2020/H&FW dated 24th March 2020 the treatment guidelines were issued.

In superseding all the previous advisories, guidelines regarding the patient management and treatment, the revised updated Treatment Guidelines Version 2 , August 2020 is issued for practicing in the State of Kerala.

The Guidelines are attaches as an **Annexure**. The Guidelines may be followed up by the treating teams and the Hospital Medical Board. If there are any doubts, teams may consult the State Medical Board.

Principal Secretary

COVID-19:

Treatment Guidelines

Version 2

Department of Health & Family Welfare

Govt of Kerala

August

2020

Table of contents

1. Introduction

The COVID – 19 pandemic has been evolving since it first surfaced in China. With more data and inputs from around the world, there is now better understanding about the disease epidemiology, transmission dynamics and treatment. Data from the ACTT trial, RECOVERY trial and others have brought to light the role of antivirals and other therapeutic strategies like immunomodulators in the management of COVID-19. The results and valuable insights from latest research have been synthesized into this document, which will be updated in a timely fashion to reflect further breakthroughs and development in the treatment of SARS-CoV-2 infection.

This document has been developed as a clinical guideline to streamline the treatment of SARS-CoV 2 infection based on the available evidence from across the world and also based on data from Kerala. The best practices from other countries and institutions have been captured into this document. It is a "living" document and will be updated from time to time based on evolving evidence.

2. Case Definitions

Suspect case

A. A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), AND a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset;

OR

B. A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID-19 case in the last 14 days prior to symptom onset;

OR

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

Probable case

A. A suspect case for whom testing for the COVID-19 virus is inconclusive.

OR

B. A suspect case for whom testing could not be performed for any reason.

Confirmed case

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

In patients coming from cluster containment zones, SARS CoV 2 infection should also be suspected in patients who present with stroke in young, multi vessel / large vessel stroke, Kawasaki like illness, multi system inflammatory syndrome, hyperinflammatory shock, toxic shock syndrome like illness in children , acute myocardial infarction,Guillain-barre syndrome, viral encephalitis, ADEM,olfactory/gustatory dysfunction or conjunctivitis.

3. Clinical Categorization

Categories based on symptomatology

A	Mild sore throat / cough / rhinitis /diarrhea
B	Fever and/or severe sore throat / cough /diarrhea OR Category-A with any one of • Lung/ heart / liver/ kidney / neurological disease/ Hypertension / haematological disorders/ uncontrolled diabetes/ cancer /HIV-AIDS/ Cardiovascular disease • On long term steroids /immunosuppressive drugs. • Pregnant lady • Age –more than 60 years.
C	• Breathlessness, chest pain, drowsiness, fall in blood pressure, haemoptysis, cyanosis [red flag signs] • Children with ILI (influenza like illness) with ***red flag signs*** (Somnolence, high/persistent fever, inability to feed well, convulsions, dyspnoea /respiratory distress, etc). • Worsening of underlying chronic conditions.

*Categorization should be reassessed every 24-48 hours for Category A & B

Clinical Severity Stages

Clinical Severity	Clinical Parameters	Corresponding Category according to state guidelines
Mild	No breathlessness or Hypoxia	A, B
Moderate	**Adult**: dyspnea and/ or hypoxia, fever, cough, SpO2≤94% (range 90-94%) on room air, Respiratory Rate ≥24 per minute. **Child** – dyspnea and or hypoxia, fever, cough, including SpO2 ≤94% (range 90-94%) on room air, Respiratory Rate ≥ 24 per minute. Fast breathing (in breaths/min): < 2 months: ≥ 60; 2–11 months: ≥ 50; 1–5 years: ≥ 40	C
Severe	**Adult**: Pneumonia plus one of ‣ respiratory rate ≥30 breaths/min ‣ severe respiratory distress ‣ SpO2 ≤90% on room air. **Child**: cough/dyspnoea, plus one of ‣ central cyanosis or SpO2 ≤90%; ‣ severe respiratory distress (e.g. grunting, chest in-drawing); ‣ signs of pneumonia with danger signs: (inability to breastfeed or drink, lethargy. unconsciousness, or convulsions). ‣ Other signs of pneumonia like chest in drawing, fast breathing (in breaths/min): <2 months ≥60; 2–11 months ≥50; 1–5 years ≥40.	C

Severity categories for treatment purpose

Mild	Respiratory Rate < 24/min, SpO2 > 94 on room air
Moderate	Respiratory rate between 24-29, SpO2 between 91-94 on room air
Severe	Respiratory Rate ≥ 30, SpO2 < 90

4. Treatment

Laboratory investigation for proven COVID 19 patients

At Admission	CBC, RFT, LFT, CRP, RBS, S.electrolytes, ECG, Pulse oximetry.
If clinically Indicated	Portable CXR, HIV, HBsAg, HCV, D-Dimer, Ferritin, LDH, CPK, procalcitonin, Blood culture, TROP T/I,HRCT Thorax
To repeat Every 48 hours if clinically deteriorating.	CBC, Creatinine, AST/ALT, CRP, LDH, CPK, Ferritin, D Dimer.
For Immunocompromised patients eg Transplant recipients, HIV	Tests to rule out opportunistic infections like Mycobacterium tuberculosis, pneumocystis jiroveci etc

Identification of high risk patients

Co morbidities	Clinical assessment	Laboratory values
Uncontrolled diabetes [HbA1C >7.6%	Hypoxia – SpO2 $\leq$ 94 % on room air	CRP > 100 mg /L
Hypertension	Tachycardia PR > 125/min	CPK > twice upper limit of normal
Cardiovascular disease	Respiratory distress RR > 24/min	Ferritin > 300mcg/L
Preexisting pulmonary disease	Hypotension BP < 90systolic, 60mm Hg Diastolic	LDH > 245 U /L
CKD	Altered sensorium	TROP T elevation
CLD	PAO2/FiO2< 300 mm of Hg	D Dimer > 1000ng/ml
On immunosuppressives/biologicals		
HIV CD4 <200 / congenital immunodeficiency disorders		Multi organ dysfunction
Age > 65 yrs		*ALC < 0.8
BMI >30		#NLR >3.13

*ALC – Absolute lymphocyte count #NLR – Neutrophil lymphocyte ratio [NLR –should be calculated prior to steroid administration]

CT Guided approach to diagnosis in suspected COVID 19 patient

In symptomatic patients with suspected COVID – 19, HRCT thorax may be considered for diagnosis of COVID –19 when initial RT-PCR testing is negative.CT guided approach should be used in RTPCR negatives cases with high clinical index of suspicion of COVID – 19.

Imaging classification	**Rationale**	**CT appearance**
Typical appearance	Commonly reported imaging features of greater specificity for COVID 19 pneumonia	Peripheral bilateral GGO with or without consolidation or visible intra lobular lines (‘crazy paving’) Multifocal GGO of rounded morphology with or without consolidation or visible intra lobular lines (‘crazy paving’) Reverse halo sign or other signs of organizing pneumonia
Indeterminate appearance	Non specific imaging features of COVID 19 pneumonia	**Absence of typical features AND Presence of** Multifocal diffuse perihilar or unilateral GGO with or without consolidation lacking a specific distribution and are non rounded or non peripheral Few very small GGO with a non rounded and non peripheral distribution
Atypical Features	Uncommonly or not reported features of COVID-19 pneumonia	**Absence of typical features or indeterminate features AND Presence of** Isolated lobar or segmental consolidation without GGO Discrete small nodules (centrilobar, tree in bud) Lung cavitation Smooth interlobular septal thickening with pleural effusion
Negative for pneumonia	No features of pnuemonia	No CT features to suggest pneumonia

GGO – ground glass opacities

Reference: Simpson S, Kay FY, Abbara S, Bhalla S, Chung JH, Chung M, Henry TS, Kanne JP, Kligerman S, Ko JP, Litt D. Radiological Society of North America Expert Consensus Statement on Reporting Chest CT Findings Related to COVID-19. Endorsed by the Society of Thoracic Radiology, the American College of Radiology, and RSNA. Radiology: Cardiothoracic Imaging, in press. https://doi.org/10.1148/ryct.2020200152

Typical Features for Pulmonary Involvement of COVID-19
Obligatory Features
Ground-glass opacities, with or without consolidations, in lung regions close to visceral pleural surfaces, including the fissures (subpleural sparing is allowed) and multifocal bilateral distribution
Confirmatory Patterns
Ground-glass regions
Unsharp demarcation, (half) rounded shape
Sharp demarcation, outlining the shape of multiple adjacent secondary pulmonary lobules
Crazy paving
Patterns compatible with organizing pneumonia
Thickened vessels within parenchymal abnormalities found in all confirmatory patterns

Overview of CO-RADS Categories and the Corresponding Level of Suspicion for Pulmonary Involvement in COVID-19		
CO-RADS Category	Level of Suspicion for Pulmonary Involvement of COVID-19	Summary
0	Not interpretable	Scan technically insufficient for assigning a score
1	Very low	Normal or noninfectious
2	Low	Typical for other infection but not COVID-19
3	Equivocal/unsure	Features compatible with COVID-19 but also other diseases
4	High	Suspicious for COVID-19
5	Very high	Typical for COVID-19
6	Proven	RT-PCR positive for SARS-CoV-2
Note.—CO-RADS = COVID-19 Reporting and Data System, COVID-19 = coronavirus disease 2019, RT-PCR = reverse transcription polymerase chain reaction, SARS-CoV-2 = severe acute respiratory syndrome coronavirus 2.		

Reference: Prakap M, Everdingen WV, VEllinga TR et al, for the COVID-19 Standardized Reporting Working Group of the Dutch Radiological Society. CO-RADS: A Categorical CT Assessment Scheme for Patients Suspected of Having COVID-19—Definition and Evaluation. Radiology 2020; 296:E97–E104 • https://doi.org/10.1148/radiol.2020201473

Treatment

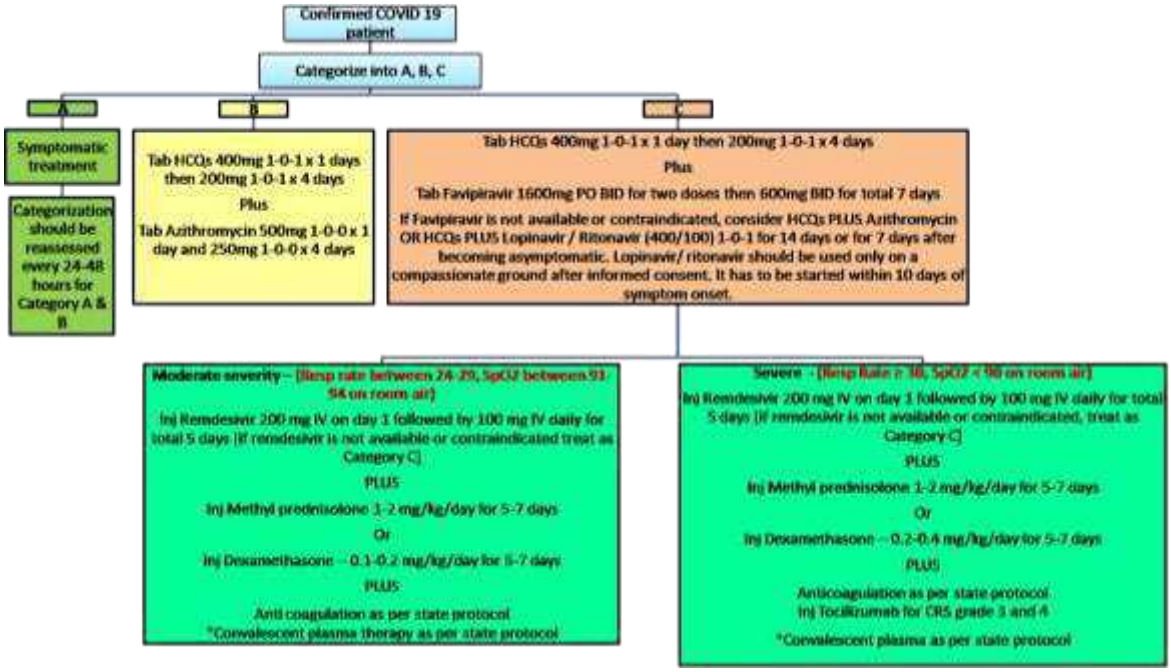
- Patients categorized to A, B, C must be further risk stratified into mild, moderate and severe.
- AVOID using NSAIDs other than paracetamol unless absolutely necessary.
- AVOID using nebulized drugs to avoid aerosolization of virus, use MDI instead.
- Oseltamivir should be initiated in all symptomatic patients with influenza like illness till RTPCR/Antigen test result is obtained.
- In patients with COVID-19 pneumonia, secondary bacterial or viral infection is uncommon. Initiation/continuation of antibiotics solely due to COVID-19 is not indicated. Extended duration of fever is typical in COVID-19 patients. Based on literature to date, no unique association between specific pathogens, such as MRSA or *Pseudomonas*, has been made with COVID-19. Antibiotic selection in case of secondary bacterial pneumonia should be as per institutional antibiogram.
- GINA and GOLD guidelines have recommended continuation of inhaled steroids even in patients with COVID-19.
- Currently there are no data to support either starting or stopping ACEi /ARBs in any patients with COVID-19. ACEi /ARB may be continued in patients who are already on them. However, if acute kidney injury, hypotension or other contraindication develops, consider stopping them at that time.
- If secondary pneumonia is not improving on broad spectrum antibiotics, consider the possibility of CAPA [Covid Associated Pulmonary Aspergillosis] also.

Treatment strategies according to clinical categorization and Risk stratification

Category	Treatment	Precautions
A	Symptomatic treatment	Categorization should be reassessed every 28-48 hours for Category A.
B	Tab HCQs 400mg 1-0-1 x 1 day, then 200 1-0-1 x 4 days* (Children : 6.5mg/kg/ dose PO BD day 1 followed by 3.25mg/kg/dose PO BD X 4 days) Plus Tab Azithromycin 500mg 1-0-0 x 1 day and 250mg 1-0-0 x 4 days Children: 10 mg/kg (max 500mg) day 1, Followed by 5mg/kg/day on days 2 to 5. Tab Oseltamivir 75mg 1-0-1 in all symptomatic patients with influenza like illness until PCR report. Children : 3mg/kg/dose BD Dose adjustment for those with renal insufficiency	Contraindications to HCQS QTc > 500msec Porphyria Myasthenia gravis Retinal pathology Epilepsy Pregnancy is NOT a contraindication If Baseline QT is prolonged – frequent ECG monitoring is required
C	• Tab HCQs 400mg 1-0-1 x 1 day, then 200mg 1-0-1 x 4 days Children : 6.5mg/kg/ dose PO BD day 1 followed by 3.25mg/kg/dose PO BD X 4 days PLUS • Tab Favipiravir 1800mg PO BID for two doses then 800mg BID for total 7 to 10 days • If Favipiravir is not available or contraindicated, consider	For chloroquine and derivatives as discussed above For Lopinavir-ritonavir Assess for drug-drug interactions (including with calcineurin inhibitors) before starting. Gastrointestinal intolerance

	HCQs PLUS Azithromycin OR HCQs PLUS Tab Lopinavir / Ritonavir (400/100) 1-0-1 for 14 days or for 7 days after becoming asymptomatic. Children ‣ 14 days to 6 months : 16mg/kg (based on lopinavir component) PO BD ‣ < 15kg : 12 mg/kg PO (based on lopinavir component BD) ‣ 15-25 kg: 200 mg-50 mg PO BD ‣ 26-35 kg: 300 mg-75 mg PO BD ‣ >35 kg: 400 mg-100 mg PO BD Lopinavir/ritonavir should be used only on a compassionate ground after informed consent. It has to be started within 10 days of symptom onset.	may be seen Monitor liver function tests while on therapy. Discontinue these agents upon discharge regardless of duration, unless previously used as Maintenance medications for another indication.
C – moderate severity (Resp rate between 24-29, SpO2 between 91-94 on room air)	• Inj Remdesivir 200 mg IV on day 1 followed by 100 mg IV daily for 5 days [If not available treat as Cat C] PLUS • Inj Methyl prednisolone 0.5-1 mg/kg/day for 5-7 days Or • Inj Dexamethasone – 0.2-0.4 mg/kg/day for 5-7 days • Convalescent plasma therapy as per state protocol Anti coagulation as per state protocol	

C – severe signs and symptoms Resp Rate ≥ 30, SpO2 < 90 on room air	• Inj Remdesivir 200 mg IV on day 1 followed by 100 mg IV daily for 5 days [If not available treat as Cat C] PLUS • Inj Methyl prednisolone 1-2 mg/kg/day for 5-7 days Or • Inj Dexamethasone – 0.2-0.4 mg/kg/day for 5-7 days • Convalescent plasma therapy as per state protocol • Inj Tocilizumab for cytokine release syndrome grade 3 and 4 Anti coagulation as per state protocol	Remdesivir is contraindicated in • AST/ALT > 5 times Upper limit of normal (ULN)[AST/ALT has to be monitored daily] • Severe renal impairment (i.e., eGFR < 30ml/min/m2 or need for hemodialysis) • Pregnancy or lactating females
Favipiravir can lead to teratogenicity, transaminitis, neutropenia and dose dependent hyperuricemia. Prior to using favipiravir or remdesivir, pregnancy has to be ruled out in all females in reproductive age group. Favipiravir should not be used in pregnant and lactating females. Favipiravir should be stopped if SGPT >5 times upper limit of normal or if creatinine clearance is <30ml/min/m² or if there is doubling of creatinine from baseline without an alternative explanation.		
*If HCQs is not available Tab Chloroquine base 600 mg (10mg/kg) at diagnosis and 300mg (5 mg/kg) 12 h later, followed by 300 mg (5 mg/kg) BD up to Day 5 [Usually 1tablet of chloroquine has 150 mg base]		
In Pregnant patients with category C since remdesivir and favipiravir are contraindicated consider using either HCQs PLUS azithromycin OR HCQs PLUS Lopinavir / ritonavir		
Zinc sulphate 50mg BD may be added to patients on HCQs / chloroquine		



A	Mild sore throat / cough / rhinitis /diarrhea
B	Fever and/or severe sore throat / cough OR Category-A with any one of the following Lung/ heart / liver/ kidney / neurological disease/ Hypertension/haematological disorders/ uncontrolled diabetes/ cancer /HIV- AIDS On long term steroids Pregnant lady Age –more than 60 years.
C	Breathlessness, chest pain, drowsiness, fall in blood pressure, haemoptysis, cyanosis [red flag signs] Children with ILI (influenza like illness) with ***red flag signs*** (Somnolence, high/persistent fever, inability to feed well, convulsions, dyspnoea /respiratory distress, etc). Worsening of underlying chronic conditions.

Contraindications to chloroquine /HCQS

QTc > 500msec, Porphyria, Myasthenia gravis, Retinal pathology, Epilepsy. Pregnancy is NOT a contraindication. If Baseline QT is prolonged – Monitor ECG daily

Favipiravir can lead to teratogenicity, transaminitis, neutropenia and dose dependent hyperuricemia. Prior to using favipiravir or remdesivir, pregnancy has to be ruled out in all females in reproductive age group. Favipiravir should not be used in pregnant and lactating females. Favipiravir should be stopped if SGPT >5 times upper limit of normal or if creatinine clearance is <30ml/min/m² or if there is doubling of creatinine from baseline without an alternative explanation.

Remdesivir is contraindicated in

- AST/ALT > 5 times Upper limit of normal (ULN)[AST/ALT has to be monitored daily]
- Severe renal impairment (i.e., eGFR < 30ml/min/m2 or need for hemodialysis)
- Pregnancy or lactating females

In Children: HCQs 6.5mg/kg/ dose BD, day 1 followed by 3.25mg/kg/dose PO BD X 4 days
Lopinavir/Ritonavir (based on lopinavir component): 14 days to 6months : 16mg/kg PO BD, < 15kg : 12 mg/kg PO, 15-25 kg: 200 mg-50 mg PO BD, 26-35 kg: 300 mg-75 mg PO BD, >35 kg: 400 mg-100 mg PO BD

Zinc sulphate 50mg BD may be added to patients on HCQs/ Chloroquine

Criteria for using Tocilizumab

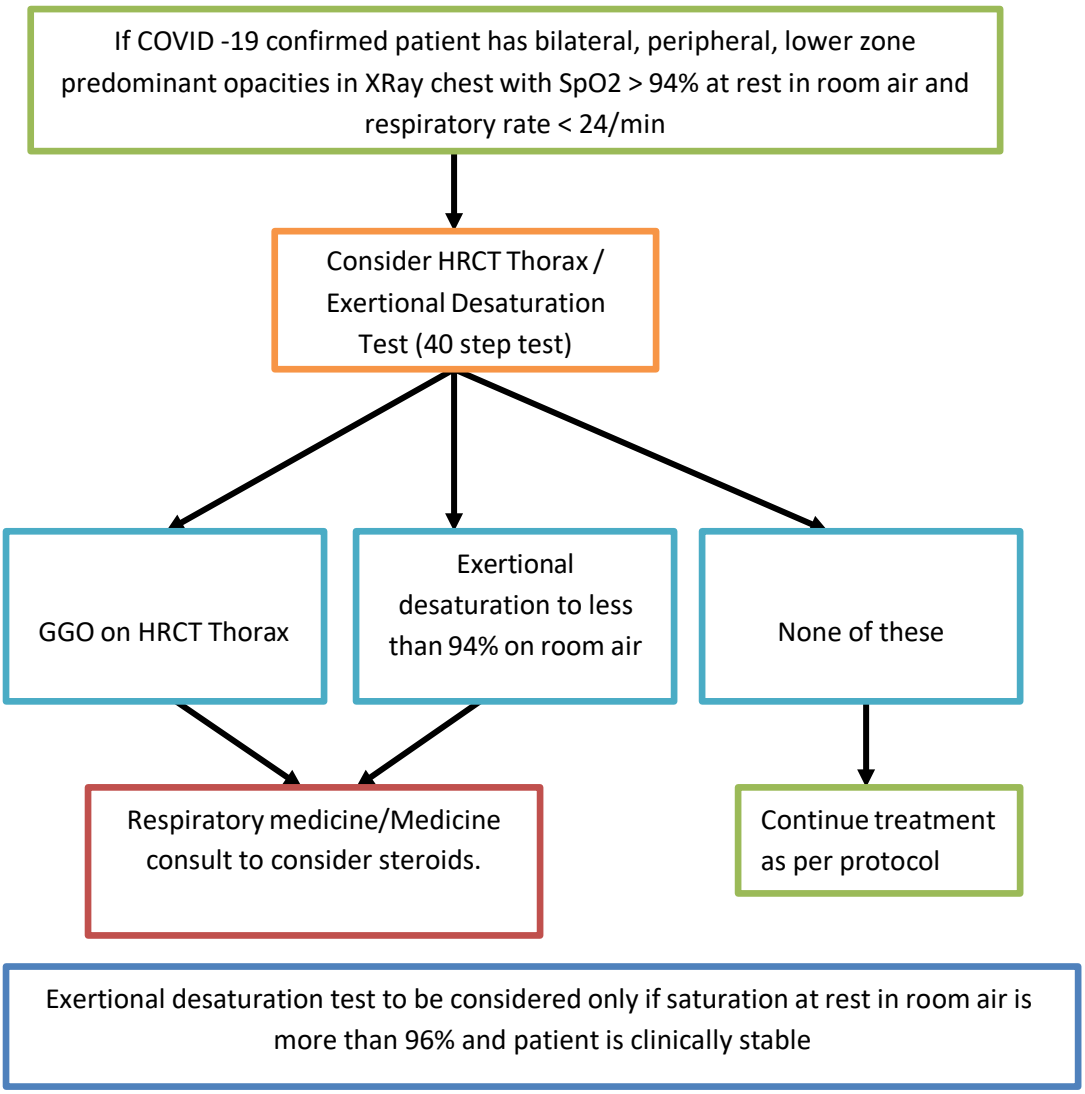
Criteria for using Tocilizumab	Tocilizumab Regimen
Patient should meet ALL the following criteria: 1. Rapidly worsening respiratory status over 24-48 hours despite at least 24 hours of corticosteroid use 2. Temperature ≥38.3°C in the past 24 hours (note: ECMO or CRRT can lower body temperature. These patients may not mount fevers and need to be evaluated on a case by case basis) 3. Absolute lymphocyte count ≤ 1000/CUMM 4. Elevated serum inflammatory markers - Must have one of the following: a. LDH ≥ 500 units/L (persistent or rising) b. Ferritin ≥ 1000 ng/mL (or doubling within 24 hours) c. D-dimer ≥ 5 mg/L (persistent or rising) 5. Does not have a poor prognosis due to another cause, where patient is unlikely to survive 48 hours from screening 6. Absence of systemic bacterial or fungal co-infection	8 mg/kg IV (Maximum dose 800 mg] may be repeated once after 12 hours if no clinical improvement. <u>Toxicities/Monitoring Parameters</u> - Infusion related/ injection site reaction - Monitor LFTs (life threatening hepatotoxicity can occur) - Monitor neutrophils/platelets <u>Cautions</u> - Patients with increased risk of GI perforations - Use in pregnant patients must be made on a case-by case-basis with additional discussion and approval from the OB/GYN attending. - ALT/AST 3xULN - Neutropenia (ANC < 0.5 K/CUMM) - Thrombocytopenia (< 50 K/CUMM) - Latent or active pulmonary tuberculosis

5. Cytokine release syndrome [CRS]

Grade	Clinical Assessment	Treatment
Grade 1	Mild reaction: low grade fever, No oxygen requirement or need for IVF	No treatment
Grade 2	Moderate reaction : -High grade fever (> 103F), need for IVF (not hypotension), mild oxygen requirement (<6L/min) -Grade 2 AKI -Grade 3 LFT (Raised liver enzymes and S. Bilirubin ≥ 2.5gm/dl)	Send for serum IL-6, If not available , use CRP as a surrogate marker
Grade 3	Severe reaction : -Rapidly worsening respiratory status with radiographic infiltrates and spo2 ≤ 93% in room air or on supplemental oxygen (> 6L/min, high flow, BiPAP, CPAP) - Grade 4 Liver function test (raised liver enzymes, S Bilirubin > 2.5gm/dl and INR > 1.5, encephalopathy) -Grade 3 AKI, -IVF for resuscitation , - coagulopathy requiring correction with FFP or cryoprecipitate -low dose vasopressor (Noradrenaline < 0.5mcg/kg/min or Adrenaline < 0.3mcg/kg/min)	Send for serum IL-6 or CRP, Ferritin Consider tocilizumab if there is no response to steroids >18 years : 8mg/kg IV (max 400mg) < 18 years < 30kg : 12mg/kg IV over 60 minutes >30kg : 8mg/kg (max 800mg) IV over 60minutes if no effect can repeat x 2 more doses Q8H apart;
Grade 4	Life threatening multi organ dysfunction, hypoxia requiring mechanical ventilation, hypotension requiring high dose vasopressors	Send for serum IL-6 or CRP; consider tocilizumab as in Grade 3 if there is no response to steroids.

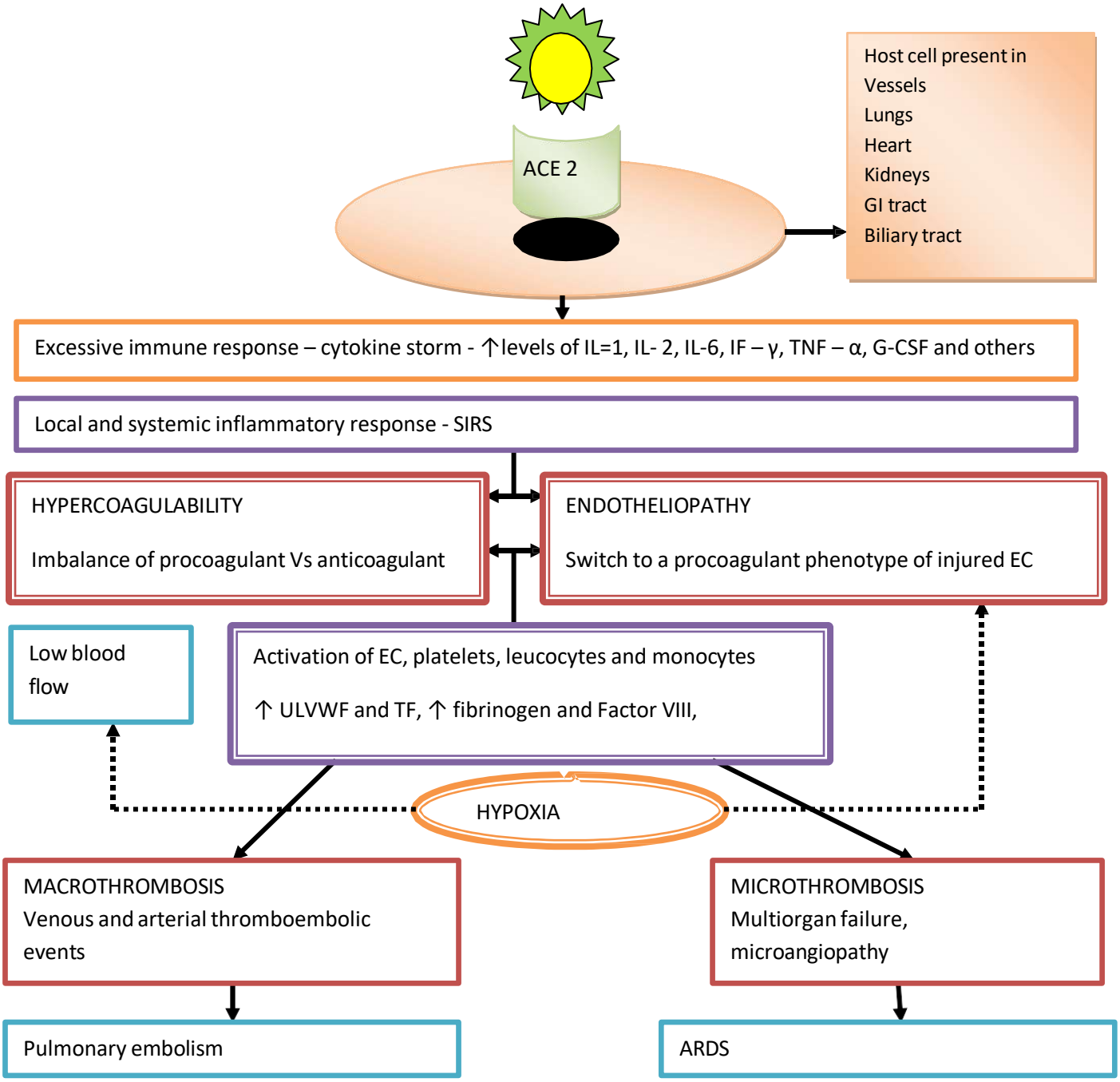
(Adapted and modified from the Penn CRS criteria and MGH)

Algorithmic approach to patients with exertional desaturation / radiological evidence of interstitial pneumonia without hypoxia at rest

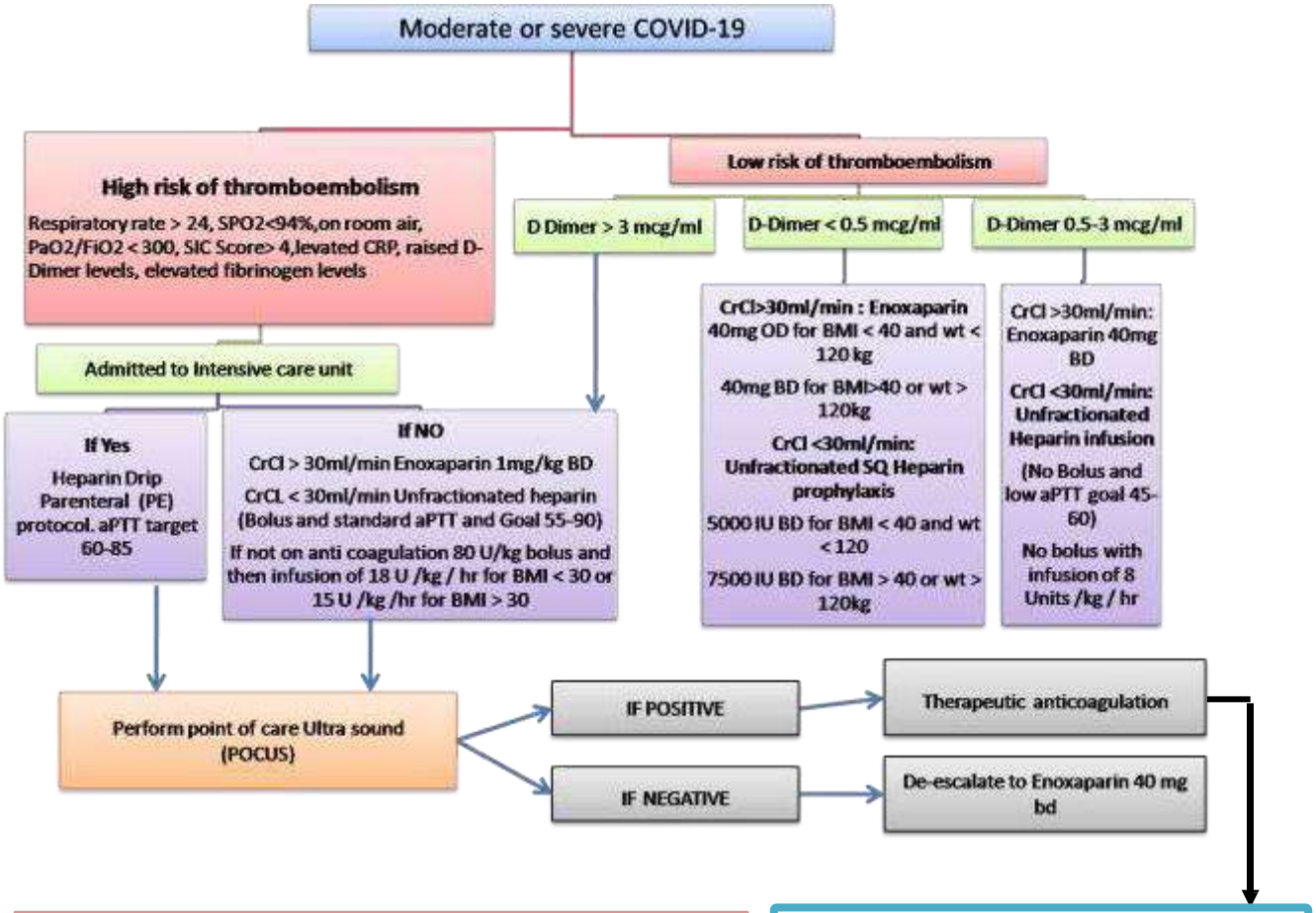


6. Anticoagulation

PATHOGENESIS OF COVID – 19 AND THE NEED FOR ANTICOAGULATION



Kerala State Anticoagulation algorithm in COVID -19



Moderate illness: individuals who have evidence of lower respiratory illness by clinical assessment or imaging and a saturation of oxygen (SpO2 ≤ 94%) on room air at sea level

Serious illness: Individuals who have respiratory frequency >30 breaths/min, SpO2 ≤90% on room air at sea level, PaO2/FIO2 < 300 or lung infiltrates > 50%

For COVID positive on Therapeutic anticoagulation during hospitalization, Tab Apixaban 5mg BD to be continued for minimum of 2 weeks after discharge. To reduce dose to 2.5mg BD if Age > 80years or weight ≤ 60kg

Hold anticoagulation if platelet count < 25,000/ml or evidence of current or recent bleeding

If taking anticoagulation at home for any previous indication, may switch to enoxaparin or heparin as per algorithm for the duration of hospitalization unless contraindicated

SIC score

Category	Parameter	0 point	1 point	2 points
Prothrombin time	PT-INR	≤1.2	>1.2	>1.4
Coagulation	Total Platelet Count (x 10^9/ml)	≥150	<150	<100
Total SOFA	SOFA four items	0	1	≥2

When to suspect Pulmonary Embolism:

This is a challenge given the inherent hypoxia and altered coagulation profile observed in COVID-19 infected patients.

Consider PE in the case of:

a. Marked increase/rising D-dimer from baseline AND

b. Acute worsening of oxygenation, blood pressure, tachycardia with imaging findings **NOT** consistent with worsening COVID-19 Pneumonia.

Rationale for early anti coagulation

- Pathophysiology of COVID – 19 associated respiratory disease is consistent with pulmonary vascular thromboemboli with increased dead space ventilation
- Autopsy studies have demonstrated venous thrombo embolism in deceased Corona patients
- Early anticoagulation is necessary to prevent propagation of micro thrombi at disease presentation
- Early anticoagulation may be associated with decreased mortality

Rationale for choice of Anticoagulant

- Heparin binds tightly to COVID - 19 spike protein
- Heparin also downregulate IL-6 and directly dampen immune activation

References

1. Bassam Atallah, Saad I Mallah, Wael AlMahmeed, Anticoagulation in COVID-19, European Heart Journal - Cardiovascular Pharmacotherapy, pvaa036

2. Massachusets General Hospital Hematology Recommendations and Dosing Guidelines during COVID-19

3. Mount Sinai anticoagulation algorithm

4. Joly, B.S., Siguret, V. & Veyradier, A. Understanding pathophysiology of hemostasis disorders in critically ill patients with COVID-19. Intensive Care Med (2020)

7. Compassionate use of convalescent plasma for treatment of patients with moderate to severe COVID 19 infection

Compassionate use of convalescent plasma may be considered in

1. Laboratory confirmed diagnosis of infection with SARS CoV 2
2. COVID – 19 with moderate/severe disease
3. Informed consent provided by the patient or relative
4. Emergency approval from state medical board

Moderate COVID 19

Respiratory rate 24-29/min
SpO2 ≤ 94% on room air

Severe COVID infection

Respiratory rate ≥ 30/min
SpO2 ≤ 90% on room air
Ratio of partial pressure of arterial oxygen to fraction of inspired oxygen ratio < 300
Lung infiltrates > 50% within 24-48 hours

Exclusion criteria

1. Lack of consent
2. Known hypersensitivity to blood products
3. Known IgA deficiency or immunoglobulin allergy.

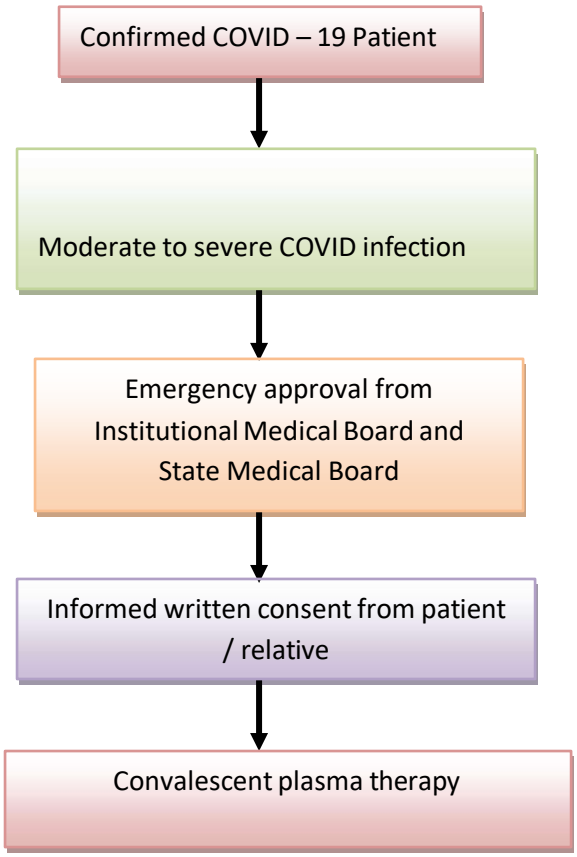
Eligibility of Donor

- ≥ 18 years of age
- Males or female donors of weight > 55kg
- Prior diagnosis of COVID – 19 documented by a laboratory test (RT-PCR) with symptomatic disease with at least fever and cough OR preferably plasma IgG titre [against S-protein] should be above 1:640.
- Complete resolution of symptoms at least 28 days to donation
- Further technicalities with regard to donor eligibility will be decided by transfusion medicine departments of designated COVID-19 treatment facilities.

OR

- In addition donor eligibility criteria for whole blood donation will be followed in accordance to the drugs and cosmetics Act 1940 and rules 1945 therein (as amended till March 2020)

SOP for convalescent plasma administration under compassionate grounds



Dose of convalescent plasma

ABO compatible plasma transfusion of 200ml will be followed by one additional dose of 200ml at 24 hours interval unless contraindicated. Hence the cumulative dose of convalescent plasma for each patient will be 400ml.The second plasma unit will preferably be from a different donor depending on availability of another ABO compatible plasma unit or else plasma unit from the same donor will be issued.

Reference

1. Recommendation for investigational use of COVID -19 convalescent plasma – US FDA
2. Clinical management protocol :COVID-19: Government of India Version 3
3. ICMR: PLACID trial protocol

8. Chemoprophylaxis

The National Task force for COVID-19 constituted by ICMR recommends the use of hydroxy-chloroquine for prophylaxis of SARS-CoV -2 infection for high risk population.

Asymptomatic healthcare workers involved in the care of suspected or confirmed cases of COVID-19.

Asymptomatic household contacts of laboratory confirmed cases

DOSE

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.

Asymptomatic household contacts of laboratory confirmed cases: 400 mg twice day on Day 1, followed by 400 mg once weekly for next 3 weeks, to be taken with meals.

Exclusion/contraindication

Drug is not recommended for prophylaxis in children under 15 years of age.

Drug is contraindicated in persons with retinopathy, hypersensitivity to HCQS or 4-aminoquinoline compounds

Hydroxychloroquine prophylaxis is to be taken ONLY as per prescription of a physician and baseline QTc interval should be calculated for all persons prior to administering the drug

9. REMDESIVIR

Remdesivir is an intravenous (IV) investigational nucleotide prodrug of an adenosine analog. Remdesivir binds to the viral RNA-dependent RNA polymerase, inhibiting viral replication through premature termination of RNA transcription. It has demonstrated *in vitro* activity against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] In a rhesus macaque model of SARS-CoV-2 infection, remdesivir treatment was initiated soon after inoculation; remdesivir-treated animals had lower virus levels in the lungs and less lung damage than the control animals.[2]

Remdesivir has been studied in several clinical trials for the treatment of COVID-19. The recommendations for use of Remdesivir is based on the results of these trials

Recommendation for Prioritizing Limited Supplies of Remdesivir

- Since supplies are limited, remdesivir should be prioritized for use in hospitalized patients with COVID-19 who require supplemental oxygen but who are not on high-flow oxygen, noninvasive ventilation, mechanical ventilation, or extracorporeal membrane oxygenation (ECMO)

Recommendation for Patients with COVID-19 Who Are on Supplemental Oxygen but Who Do Not Require High-Flow Oxygen, Noninvasive or Invasive Mechanical Ventilation, or ECMO

- Use **remdesivir** for 5 days or until hospital discharge, whichever comes first **.**

If a patient who is on supplemental oxygen while receiving remdesivir progresses to requiring high-flow oxygen, noninvasive or invasive mechanical ventilation, or ECMO, the course of remdesivir should be completed.

Recommendation for Patients with COVID-19 Who Require High-Flow Oxygen, Noninvasive Ventilation, Mechanical Ventilation, or ECMO

- There is uncertainty regarding whether starting remdesivir confers clinical benefit in these groups of patients, so a recommendation either for or against starting remdesivir.cannot be made based on the available evidence till now.

In a randomized clinical trial, there was no observed difference between the remdesivir and placebo groups in time to recovery or mortality rate in these subgroups. However, because the trial was not powered to detect differences in outcomes in these subgroups, there is uncertainty as to the effect of remdesivir on the course of COVID-19 in these patients.

Duration of Therapy for Patients Who Have Not Shown Clinical Improvement After 5 Days of Therapy

- There are insufficient data on the optimal duration of remdesivir therapy for patients with COVID-19 who have not shown clinical improvement after 5 days of therapy. In this group, some experts extend the total remdesivir treatment duration to up to 10 days .

Rationale

The recommendations for remdesivir are largely based on data from a multinational, randomized, placebo-controlled trial (the Adaptive COVID-19 Treatment Trial [ACTT]). This trial included 1,063 hospitalized patients with COVID-19 and evidence of lower respiratory tract infection who received IV remdesivir or placebo for 10 days (or until hospital discharge, whichever came first).

Participants who received remdesivir had a shorter time to clinical recovery than those who received placebo (median recovery time of 11 days vs. 15 days, respectively). In the preliminary subgroup analyses of ACTT, there was no observed benefit for remdesivir in people with COVID-19 who did not require oxygen supplementation; however, the number of people in this category was relatively small. Remdesivir is being evaluated in another clinical trial for the treatment of patients with moderate COVID-19; complete data from this trial are expected soon.

The preliminary analysis also reported that the patients with the clearest evidence of clinical benefit from starting remdesivir were those who required supplemental oxygen but who did not require high-flow oxygen, noninvasive or mechanical ventilation, or ECMO at baseline (n = 421). In this subgroup, those who received remdesivir had a shorter time to recovery than those who received placebo (recovery rate ratio 1.47; 95% confidence interval [CI], 1.17–1.84); in a post-hoc analysis of deaths by Day 14, remdesivir appeared to confer a survival benefit (hazard ratio [HR] for death 0.22; 95% CI, 0.08–0.58).

In patients who required high-flow oxygen or noninvasive ventilation at baseline (n = 197), there was no observed difference in time to recovery between the remdesivir and placebo groups (recovery rate ratio 1.20; 95% CI, 0.79–1.81). In the post-hoc analysis of deaths by Day 14, there was no evidence that remdesivir had an impact on the mortality rate in this subgroup (HR 1.12; 95% CI, 0.53–2.38).

In participants who were on mechanical ventilation or ECMO at baseline (n = 272), there was no observed difference in time to recovery between the remdesivir and placebo groups (recovery rate ratio 0.95; 95% CI, 0.64–1.42). In the post-hoc analysis of deaths by Day 14, there was no evidence that remdesivir had an impact on the mortality rate in this subgroup (HR 1.06; 95% CI, 0.59–1.92).

A review of the final data set, which included 28-day mortality, showed that this data set was consistent with the published preliminary data (unpublished data, based on communication from the ACTT study team to the Panel).

For patients with COVID-19 who required high-flow oxygen, noninvasive ventilation, mechanical ventilation, or ECMO, there was no observed difference between the remdesivir and placebo groups in time to recovery or mortality rate. However, because the trial was not powered to detect differences in outcomes within these subgroups, there is uncertainty as to whether starting remdesivir confers clinical benefit in these patients. For this reason, a recommendation cannot be made either for or against starting remdesivir in these patients. Because the supply of remdesivir is limited, the drug should be prioritized for use in those in whom efficacy has been demonstrated (i.e., in hospitalized patients who require supplemental oxygen but who are not on high-flow oxygen, noninvasive ventilation, mechanical ventilation, or ECMO).

Data from a multinational, open-label trial of hospitalized patients with severe COVID-19 showed that remdesivir treatment for 5 or 10 days had similar clinical benefit.The optimal duration of therapy for patients who do not improve after 5 days of receiving remdesivir is unclear. In the absence of data, some experts consider extending the total treatment duration of remdesivir to up to 10 days in patients who do not improve after 5 days of remdesivir.

Monitoring, Adverse Effects, and Drug-Drug Interactions

Remdesivir can cause gastrointestinal symptoms (e.g., nausea, vomiting), elevated transaminase levels, and an increase in prothrombin time (without a change in the international normalized ratio).

Clinical drug-drug interaction studies of remdesivir have not been conducted. Remdesivir levels are unlikely to be substantially altered by cytochrome P450 (CYP) 2C8, CYP2D6, or CYP3A4 enzymes, or by P-glycoprotein (P-gp) or organic anion-transporting polypeptide (OATP) drug transporters.

Remdesivir may be administered with weak to moderate inducers or with strong inhibitors of CYP450, OATP, or P-gp. Strong induction may modestly reduce remdesivir levels. The clinical relevance of lower remdesivir levels is unknown. The the use of remdesivir with strong inducers (e.g., rifampin) **is not recommended**.

Minimal to no reduction in remdesivir exposure is expected when remdesivir is coadministered with dexamethasone. Chloroquine or hydroxychloroquine may decrease the antiviral activity of remdesivir; coadministration of these drugs **is not recommended**.

Because the remdesivir formulation contains renally cleared sulfobutylether-beta-cyclodextrin sodium, it is contraindicated in patients with creatinine clearance <30ml/min/m²

Considerations in Pregnancy

- Use remdesivir in pregnant patients only when the potential benefit justifies the potential risk to the mother and the fetus. It should be considered in pregnancy only on compassionate grounds after getting consent from the state medical board.
- The safety and effectiveness of remdesivir for treatment of COVID-19 have not been evaluated in pregnant patients.
- Remdesivir is available through the Food and Drug Administration (FDA) Emergency Use Authorization (EUA) for adults and children and through compassionate use programs for pregnant women and children with COVID-19.

Considerations in Children

- The safety and effectiveness of remdesivir for treatment of COVID-19 have not been evaluated in pediatric patients.
- Remdesivir is available through an FDA EUA for adults and children and through compassionate use programs for children with COVID-19. A clinical trial is currently

evaluating the pharmacokinetics of remdesivir in children (*ClinicalTrials.gov* identifier NCT04431453).

References

1. Wang M, Cao R, Zhang L, et al. Remdesivir and chloroquine effectively inhibit the recently emerged novel coronavirus (2019-nCoV) in vitro. *Cell Res*. 2020;30(3):269-271. Available at: https://www.ncbi.nlm.nih.gov/pubmed/32020029.
2. Williamson BN, Feldmann F, Schwarz B, et al. Clinical benefit of remdesivir in rhesus macaques infected with SARS-CoV-2. *Nature*. 2020; Published online ahead of print. Available at: https://www.ncbi.nlm.nih.gov/pubmed/32516797.
3. Beigel JH, Tomashek KM, Dodd LE, et al. Remdesivir for the treatment of COVID-19–preliminary report. *N Engl J Med*. 2020. Available at: https://www.ncbi.nlm.nih.gov/pubmed/32445440.
4. Goldman JD, Lye DCB, Hui DS, et al. Remdesivir for 5 or 10 days in patients with severe COVID-19. *N Engl J Med*. 2020; Published online ahead of print. Available at: https://www.ncbi.nlm.nih.gov/pubmed/32459919.
5. Food and Drug Administration. Fact sheet for health care providers emergency use authorization (EUA) of remdesivir (GS-5734™). 2020. Available at: https://www.fda.gov/media/137566/download. Accessed July 23, 2020.

10. Available evidence on the use of Tocilizumab in COVID-19

Tocilizumab is a recombinant humanized monoclonal antibody against IL-6 receptor

Rationale for use of Tocilizumab in COVID-19

Pro-inflammatory cytokine levels are elevated in COVID-19 infection. Predictors of mortality from a retrospective, multicentre study of 150 confirmed COVID-19 cases in Wuhan, China included elevated ferritin and IL-6. This suggests that virus induced hyper inflammation is contributing to the mortality[1, 2].

Tocilizumab has been found useful in severe or life threatening cases of cytokine release syndrome (CRS) due to chimeric antigen receptor-T cell therapy. However there are no randomized control trials that compared Tocilizumab versus steroids for CRS [3].

Dose recommended for CRS:

>18 years: 8mg/kg IV (400mg),
< 18 years:
< 30kg: 12mg/kg IV over 60 minutes
>30kg: 8mg/kg (max 800mg) IV over 60minutes

The total tocilizumab dose should not exceed 800 mg[4].
If no effect can repeat x 1 more dose after 8 to 12 hours
Can be given as an intravenous infusion in normal saline over 1 hour.

Dose modification of Tocilizumab in case of liver enzyme derangement

Liver enzymes 1-3 times upper limit of normal	For patients receiving intravenous Tocilizumab, reduce dose to 4 mg per kg or hold the drug until ALT or AST have normalized
Liver enzymes 3-5 times upper limit of normal	Hold Tocilizumab dosing until less than three times upper linit of normal and follow recommendations above for greater than 1 to three times upper limit of normal For persistent increases greater than three times upper limit of normal, discontinue
Liver enzymes > 5 times upper limit of normal	Discontinue the drug

Drug dosing based on absolute neutrophil count and platelet count

Lab Parameter (cells/mm3)	Recommendation
Anc > 1000	Maintain drug dose
ANC 500- 1000	Hold Tocilizumab dosing When ANC greater than 1000 cells per mm3 : • For patients receiving intravenous drug, resume Tocilizumab at 4 mg per kg and increase to 8 mg per kg as clinically appropriate • For patients receiving subcutaneous tocilizumab, resume drug at every other week and increase frequency to every week as clinically appropriate
ANC less than 500	Discontinue the drug
Platelet count 50,000 – 1,00,000	Hold Tocilizumab dosing When platelet count is greater than 100,000 cells per mm3 : • For patients receiving intravenous drug, resume Tocilizumab at 4 mg per kg and increase to 8 mg per kg as clinically appropriate .
Platelet count < 50,000	Discontinue Tocilizumab

.Guidelines and recommendations:

1) Recommendations for COVID-19 clinical management, National Institute for the Infectious Diseases, Italy:
Tocilizumab: 8 mg/kg (maximum 800 mg/dose), single dose intravenously (1-hour infusion); in absence or with poor clinical improvement a second dose should be administered after 8-12 hours.
Tocilizumab administration should be guided by the presence of 1 or more of following selection criteria: a) PaO2/Fi02 ratio < 300, b)rapid worsening of respiratory gas exchange with or without availability of non-invasive or invasive ventilation c)IL-6 levels >40 pg/ml (if not available, see D-dimer levels >1000 ng/ml.)
Therapeutic schedule: 2 administrations (each 8 mg/kg, maximum 800 mg). Second administration to be started at 8-12 hours from the first one. Repeat PCR and D-dimer (+/-IL-6) after 24 hours from each administration.

2) Massachusetts General Hospital COVID-19 Treatment Guidance:

To be given after establishment of clinical status

Grade 1 – mild reaction
Grade 2 – moderate reaction, fever, need for IVF (not hypotension), mild oxygen requirement
Grade 3 – severe, liver test dysfunction, kidney injury, IVF for resuscitation, low dose vasopressor, supplemental oxygen (high flow, BiPAP, CPAP)
Grade 4 – life threatening, mechanical ventilation, high dose vasopressors

Treatment interventions based on grades:

Grade 1 – no treatment
Grade 2 – send for serum IL-6
Grade 3 – send for serum IL-6; consider Tocilizumab, if no effect can repeat x 2 more doses Q8H apart; if no response, consider low dose corticosteroids
Grade 4 – send for serum IL-6; consider Tocilizumab as Grade 3; consider corticosteroids

References:

1. COVID-19: consider cytokine storm syndromes and immunosuppression - The Lancet [Internet]. [cited 2020 Mar 21]. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)30628-0/fulltext
2. Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China. - PubMed - NCBI [Internet]. [cited 2020 Mar 21]. Available from: https://www.ncbi.nlm.nih.gov/pubmed/32125452
3. Cytokine release syndrome with novel therapeutics for acute lymphoblastic leukemia. - PubMed - NCBI [Internet]. [cited 2020 Mar 21]. Available from: https://www.ncbi.nlm.nih.gov/pubmed?term=27913530
4. ACTEMRA (tocilizumab) injection. Drug monograph
5. Xu et al Effective Treatment of Severe COVID-19 Patients with Tocilizumab. China Xiv:202003.00026v1

11. GUIDELINES FOR COMPASSIONATE USE OF LOPINAVIR/RITONAVIR IN SYMPTOMATIC –COVID -19 PATIENTS

Treatment with lopinavir-ritonavir should be restricted to those patients with proven -COVID-19 who present with clinical syndromes of mild pneumonia, severe pneumonia, acute respiratory distress syndrome, sepsis or septic shock.

Patient Eligibility criteria:

- ➡ Laboratory confirmation of -COVID-19 infection.
- ➡ Patients with mild Pneumonia, severe pneumonia, ARDS, Sepsis or septic shock, hospitalized due to symptoms related to COVID-19.
- ➡ Informed consent from patient
- ➡ Clearance from Institutional Medical Board

Exclusion Criteria:

- ⊙ Asymptomatic individuals with COVID-19 infection.
- ⊙ Known allergy or hypersensitivity reaction to Lopinavir / Ritonavir.
- ⊙ A patient with Hepatic Impairment (ALT over more than five times the normal).
- ⊙ Use of medications that are contraindicated with Lopinavir / Ritonavir and that cannot be replaced or stopped, It is contraindicated with astemizole, terfenadine, cisapride, ergot derivatives, sildenafil, midazolam, triazolam; lovastatin, simvastatin, pimozide and fluticasone propionate.
- ⊙ Known HIV infected individual receiving other protease inhibitors containing regimen
- ⊙ Documented chronic liver disease.

DOSAGE OF LOPINAVIR / RITONAVIR

ADULTS:

Lopinavir / Ritonavir 200mg/50mg - 2 tablets every 12 hours for 14 days or for 7 days after becoming asymptomatic whichever is earlier

For patients unable to take medicines orally, 400mg Lopinavir / 100 mg Ritonavir 5ml suspension every 12 hours for 14 days or for 7 days after becoming asymptomatic whichever is earlier, via a nasogastric tube.

Administer with caution among persons receiving Rifampicin, Ketoconazole, ethylene estradiol.

LABORATORY SAMPLE COLLECTION-(other than investigations for routine clinical monitoring)

- ‣ Blood sample every 48 hours — for PT/INR, LFT, RFT and serum amylase (to monitor drug-induced adverse events)

FREQUENCY AND DURATION OF MONITORING:

Patients should be monitored daily until discharge from the hospital by the Institutional Medical Board.

Patient should be discharged based on the State protocol in concurrence with the opinion of Institutional Medical Board.

Adverse events of Lopinavir –ritonavir

The observed adverse effects with lopinavir/ritonavir are

1. Acute pancreatitis (defined as having)
    a. abdominal pain consistent with acute Pancreatitis
    b. serum amylase at least three times greater than the upper limit of normal)
2. Elevation of ALT to more than five-fold upper limit of normal.
3. Anaphylaxis
4. Bleeding diathesis (INR > 3 without anticoagulant therapy)
5. Diarrhoea.

12. Adult critical care guidelines

I. CASE DEFINITION -CRITICAL

1. Respiratory failure, requiring Mechanical ventilation (PaO_2<60 with FiO_2>0.5 with or without $PaCO_2$>50mmHg with pH<7.25)
2. Shock
3. Other organ failure requiring ICU admission

II. SEVERE &CRITICAL CASE: MANAGEMENT

1. Assess:
    a. General: PR, HR, BP, Respiratory Rate, SpO_2, Work of breathing
    b. SpO_2
    c. Tidal volume generated if on NIV
    d. Level of consciousness
    e. Organ function
    f. System examination
    g. Screening echo
    h. Labs:
        i. BRE: Hb, TC, DC,Platelet count
        ii. URE
        iii. LFT
        iv. RFT
        v. Lactate
        vi. Blood sugar
        vii. CRP
        viii. Procalcitonin
        ix. Coagulation profile
        x. Ferritin,LDH
        xi. ECG
        xii. hsTrop T/ Trop I
        xiii. Chest Imaging
        xiv. NTProBNP

2. Warning Indicators: Increasing work of breathing, progressive decrease of peripheral Absolute lymphocyte count, increasing levels of IL-6/ C-reactive protein, Tissue oxygenation indices decreases, Lactate level increasing progressively, Chest CT/Xray shows obvious progression of lung lesions.

3. COVID-19 patients appear to havetwo phenotypes, from the perspective of ICU management (Gattinoni et al, 2020). Management should be optimised for each individual

patient as clinically indicated, based on established strategies for the management of ARDS.

L-phenotype

a. Typical of early presentation viral pneumonitis
b. Hypoxaemia with preserved CO_2 clearance (Type 1 respiratory failure)
c. LowElastance (i.e. high compliance)
d. Low V/Q matching (possibly due to abnormal hypoxic vasoconstriction)
e. Low recruitability (poor response to PEEP and prone position ventilation)
f. May be able to avoid mechanical ventilation with appropriate oxygen therapy

H phenotype

a. Typical of later illness and classic ARDS, including patients who have had prolonged non-invasive ventilation (potential for patient-induced lung injury) and co-existing lung disease or complications
b. Hypoxaemia +/- impaired CO_2 clearance (Type 1 and/or 2 respiratory failure)
c. HighElastance (i.e. low compliance)
d. High V/Q matching
e. High recruitability (respond to PEEP and prone position ventilation)
f. May benefit from protective lung ventilation and usual ARDS therapies.

4. Treatment
   a. General Principle: Bed rest, maintain fluid balance, acid base, oxygen therapy, mechanical ventilation in time, prevent &treat complications of critically ill, treat disease, prevent secondary infections, prevent transmission.
   b. Antiviral treatment: as per state guidelines
   c. Oxygen therapy & respiratory support

      i. PaO_2/FiO_2 at 200-300
         1. Nasal cannula /oxygen mask. Assess if respiratory disease/hypoxemia has remitted. If no improvement in 1-2 hours—go to next step/invasive mechanical ventilation
         2. High flow nasal cannula HFNC: **limited recommendation**. If used patient ideally in Negative pressure room or single isolation room with good ventilation. More aerosol formation. Maximum for 2 hours. Close observation is needed. If no improvement /response (Respiratory Rate >35/minSpO_2<93%, increased work of breathing, accessory muscle use)- consider intubation and mechanical ventilation.

      ii. PaO_2/FiO_2 at 150-200

1. Non-invasive ventilation (NIV): **Limited use, more aerosols.**In Negative pressure room or single isolation room with good ventilationWhen using NIV, double circuit NIV with oronasal/helmet interface, non-vented mask preferred. Use HEPA filter at expiratory limb & HMEF at Y connector. Should **not** be used for transportation. Failure rate is high, close monitoring required. If no improvement in 1-2 Hours invasive mechanical ventilation initiated promptly. Monitor for "no improvement" or worsening (Respiratory Rate >35/minSpO_2<93%, accessory muscle use, generating large tidal volume>9-9.5ml/kg).

iii. PaO_2/FiO_2<150

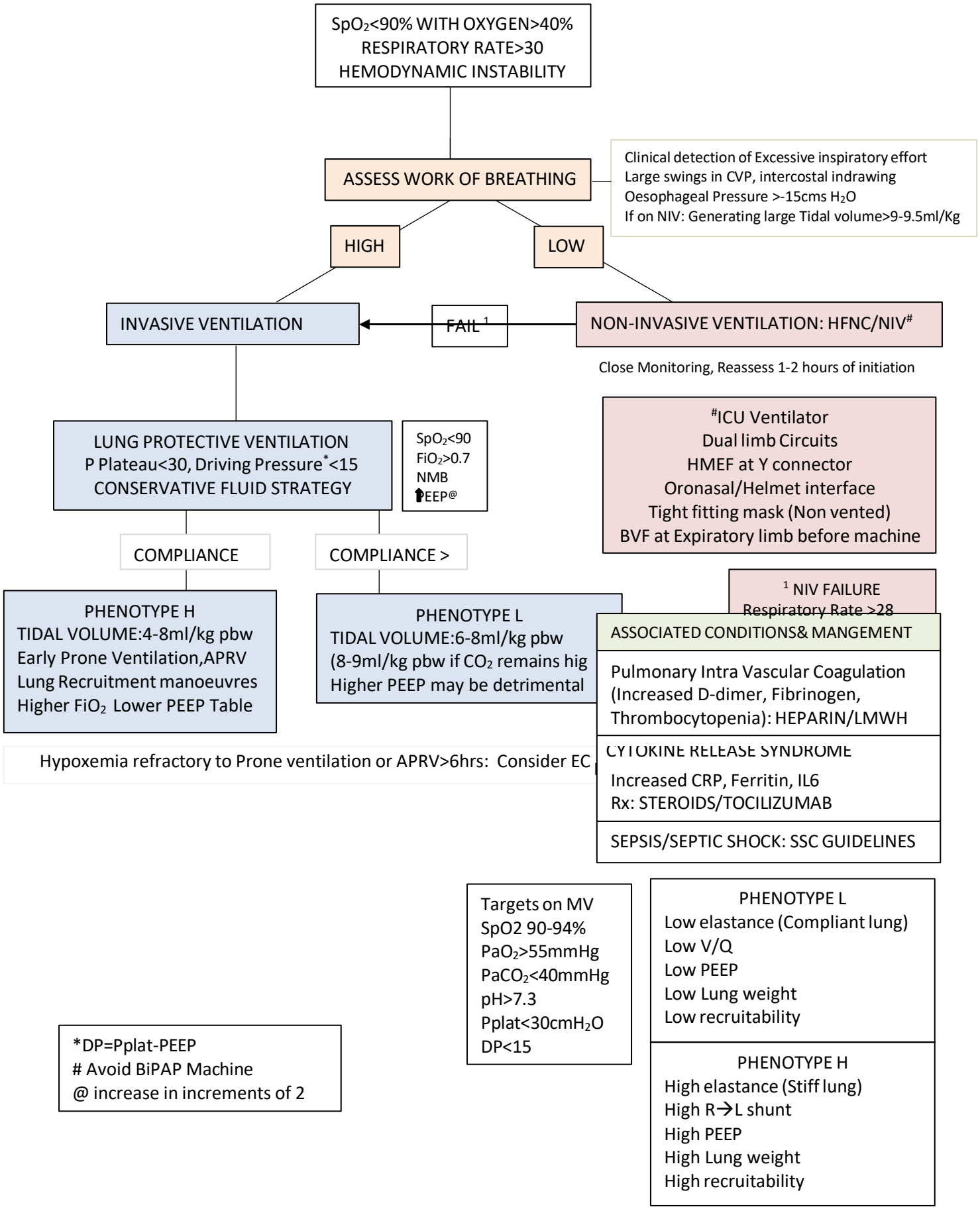
1. Invasive mechanical ventilation
   a. Early appropriate mechanical ventilation
   b. Lung protective strategy (P plateau <30, Driving Pressure <15 cms H_2O). Tidal Volume 4-8 ml/kg predicted body weight (PBW). Permissive hypercapnia may be permitted to reduce volutrauma.The initial tidal volume is 6 mL/kg PBW; tidal volume up to 8 mL/kg PBW is allowed if undesirable side effects occur (e.g. dyssynchrony, pH < 7.15) and also for L phenotype with CO_2 retention.
   c. Ards.net guidelines to be followed especially for H phenotype,
   d. PEEP: Gradual increase in increments of 2, with hemodynamic monitoring. Other options include: Optimal PEEP via static compliance method/ FiO_2/PEEP table in ARDS.net guideline

   e. Neuro muscular blockade: to be considered in the setting of worsening hypoxia or hypercapnia and in situations where the patient's respiratory drive cannot be managed with sedation alone resulting in ventilator dyssynchrony and lung decruitment.

   f. Lung recruitment:Although current evidence does not support the routine use of recruitment manoeuvres in non-COVID-19 ARDS, they could be considered in COVID-19 patients on a case by case basis. COVID-19 patients may respond well to these interventions and their application may be appropriate where the patient has not responded to other interventions. They should only be provided by clinicians experienced in undertaking these manoeuvres, dealing with their potential complications and using a closed system. Methods: See below.
   g. Prone position Ventilation: EARLY prone ventilation may be considered for refractory hypoxemia. Effective in improving hypoxia associated with COVID-19 H phenotype. This should be done in patients with refractory hypoxemia and not improving with standard lung protective ventilation strategy and policies should include suitable PPE for staff, minimise the

risk of adverse events, e.g. accidental extubation. Muscle relaxants/deep sedation be used while ventilating in prone position to avoid accidental displacement or extubation. First session of Prone ventilation is to at least 12 hours and further sessions much longer. Usefulness of prone position ventilation is shown by P/F >150, PEEP decreasing to <10, FiO_2 decreasing to <0.6 after turning patient supine and that too lasting >4 Hrs

h. Fluid Management: Conservative fluid strategy to reduce extra vascular lung water.
i. Tracheostomy: Is an aerosolization procedure and so decide on clinical basis
j. Nebulisers: MDI preferred over nebulisers
k. Bronchoscopy: Diagnostic bronchoscopy is not recommended. ETA aspirates are adequate for RT PCR diagnosis of COVID
l. Liberation from MV: Standard weaning protocols with bridging to NIV with well fitted mask and dual limb circuits and strict airborne precau


SpO2<90% WITH OXYGEN>40%
RESPIRATORY RATE>30
HEMODYNAMIC INSTABILITY
ASSESS WORK OF BREATHING
Clinical detection of Excessive inspiratory effort
Large swings in CVP, intercostal indrawing
Oesophageal Pressure >-15cms H2O
If on NIV: Generating large Tidal volume>9-9.5ml/Kg
HIGH
LOW
INVASIVE VENTILATION
FAIL[1]
NON-INVASIVE VENTILATION: HFNC/NIV#
Close Monitoring, Reassess 1-2 hours of initiation
LUNG PROTECTIVE VENTILATION
P Plateau<30, Driving Pressure*<15
CONSERVATIVE FLUID STRATEGY
SpO2<90
FiO2>0.7
NMB
PEEP@
#ICU Ventilator
Dual limb Circuits
HMEF at Y connector
Oronasal/Helmet interface
Tight fitting mask (Non vented)
BVF at Expiratory limb before machine
COMPLIANCE
COMPLIANCE >
[1] NIV FAILURE
Respiratory Rate >28
PHENOTYPE H
TIDAL VOLUME:4-8ml/kg pbw
Early Prone Ventilation,APRV
Lung Recruitment manoeuvres
Higher FiO2 Lower PEEP Table
PHENOTYPE L
TIDAL VOLUME:6-8ml/kg pbw
(8-9ml/kg pbw if CO2 remains hig
Higher PEEP may be detrimental
ASSOCIATED CONDITIONS& MANGEMENT
Pulmonary Intra Vascular Coagulation
(Increased D-dimer, Fibrinogen,
Thrombocytopenia): HEPARIN/LMWH
CYTOKINE RELEASE SYNDROME
Increased CRP, Ferritin, IL6
Rx: STEROIDS/TOCILIZUMAB
SEPSIS/SEPTIC SHOCK: SSC GUIDELINES
Hypoxemia refractory to Prone ventilation or APRV>6hrs: Consider EC
Targets on MV
SpO2 90-94%
PaO2>55mmHg
PaCO2<40mmHg
pH>7.3
Pplat<30cmH2O
DP<15
PHENOTYPE L
Low elastance (Compliant lung)
Low V/Q
Low PEEP
Low Lung weight
Low recruitability
PHENOTYPE H
High elastance (Stiff lung)
High R→L shunt
High PEEP
High Lung weight
High recruitability
*DP=Pplat-PEEP
Avoid BiPAP Machine
@ increase in increments of 2

2. ECMO: Early evaluation & implementation.
    i. ECMO Indications: Under optimal conditions
    (FiO_2>0.8, Tidal volume 6ml/kg PBW, PEEP>10 and no contraindication for prone ventilation) and prone ventilation has been implemented and meet one of the following
        a. PaO_2/FiO_2<50 for more than 3 hours
        b. PaO_2/FiO_2<80 for more than 6 hours
        c. PaO_2/FiO_2<100 with FiO2=1
        d. Arterial pH<7.25 and $PaCO_2$>60 mmHg for>6hours
        e. Arterial pH<7.20 and Plateau pressure >30cms H_2O when Respiratory rate >35/minute
        f. Concomitant cardiogenic shock or cardiac arrest
    ii. ECMO contraindication:
        a. Unrecoverable primary disease
        b. Anticoagulation contraindicated
        c. Mechanical ventilation > 7 days with higher settings (FiO_2>0.9, Plateau pressure>30cm H_2O), age older than 70 years, immunosuppression, presence of large peripheral vascular anatomy or disease
3. Choice of ECMO treatment: VV-ECMO. When circulatory failure of cardiac aetiology VA ECMO to be considered.

d. Drainage of airway secretions: Humidification with Heated humidifier /HME.**CLOSED SUCTION** device for Endotracheal suctioning.
e. Hemodynamic & Volume status: CONSERVATIVE FLUID STATERGY
    i. Close monitoring of cardiac function: Echocardiography, Troponin T/I, NT BNP, Right heart function with ECHO.
    ii. Tissue perfusion: monitoring and maintenance.
    iii. Causes of shock in COVID sepsis include:
        - Hypovolemia: Dehydration, Sepsis, Cytokine storm
        - Vasoplegia
        - RV failure: Due to ARDS, High ventilating pressure, Massive Pulmonary embolism (Assess by high CVP and with ECHO)
        - COVID myocarditis: Assess with ECG, biomarkers, Echocardiography

Find cause of hemodynamic instability (Systolic BP<90mmHg or 40 mmHg less than baseline, MAP<65mmHg, need for vasoactive drugs, severe arrhythmias) and treat the cause.

Arrhythmias should be actively managed.

Monitor clinically (Mental status, Urine output, capillary refill time, blood pressure, heart rate etc),functional hemodynamic monitoring like Passive leg raising test, Pulse pressure

variation, End expiratory occlusion, mini fluid challenge, Tidal volume challenge, IVC distensibility index, Echocardiography.

iv. Volume status: Do not overload the patient with adequate tissue perfusion. Small boluses of fluid are given and close monitoring of response noted. If signs of overload further fluids to be restricted. Over load can be assesses by worsening PaO_2/FiO_2, Extra vascular lung water if resources permit.

f. Nutrition: Early enteral feeds preferred (if no contraindications like dysfunctional gut, severe hemodynamic instability) with high calorie and proteins. 25-30 Kcal/kg/day. Protein: 1.5-2 gm/kg. Supplemental/Total parenteral if not tolerating/ dysfunctional gut.
g. STEROIDS: As mentioned in medical management of COIVD patient.
h. Antimicrobial: Routine use of antimicrobial is not recommended without clear evidence of bacterial infection.
i. Anticoagulant therapy: Mentioned in Medical management. UFH if abnormal RFT. Monitor coagulation profile &RFT
j. Sedation, Analgesia: Patient on Mechanical ventilation should be given appropriate sedation and analgesics
k. MUSCLE RELAXANTS: Routine use not recommended. If dyssynchrony can use Cis atracurium or atracurium.
l. Acute Kidney Injury & Renal replacement therapy: Second stage KDIGO criteria (Creatinine=2-2.9 times baseline value, urine output<0.5 ml/kg/hr for 12 hours) and other evidence for the need of renal replacement therapy-RRT
m. Infection transmission prevention:
    i. Use of PPE as needed.
    ii. HEPA BACTERIAL VIRAL filter placed at expiratory limb of ventilator tubing
    iii. N95 mask / 3 ply mask for patient whenon Nasal Cannula for Oxygen supplementation.
    iv. All intensive care personnel (medical, nursing, allied health, cleaning and ward assistants) receive training in infection control and personal protection equipment.
    v. Recommend minimising aerosol generating procedures. If they must be performed, then they should be completed in a negative pressure room. If this is not available, then a single room should be used.
    vi. When a unit is caring for a confirmed or suspected COVID-19 patient, ensure that all donning and doffing are supervised by an additional appropriately trained staff member.

vii. Recommend against the use of nebulised agents (e.g. salbutamol, saline) for the treatment of non-intubated COVID-19 patients due to the risk of aerosolization and transmission of infection to health care workers in the immediate vicinity.
viii. Clamp the ETT while intubating and when disconnection is required like during changing to transport ventilator.
ix. Allow time for complete muscle paralysis prior to intubation to avoid spontaneous exhalation by patient.

Aerosol generating procedures include:

- Intubation
- Extubation
- Bronchoscopy
- High flow nasal oxygen use
- Non-invasive ventilation (particularly with a poorly fitting mask)
- Procedures on screaming children
- Tracheostomy
- CPR prior to intubation

5. Transfer out of ICU:

   Stable vitals, Oxygenation has improved (needs only Room air or low flow oxygen), weaned off from ventilator, Conscious, Respiratory rate<30/min, SpO2>93%, Stable hemodynamic, Not on support, No acute organ dysfunction.

IV. INTUBATION: Process & Precautions:

1. Ideally done in Negative Pressure room. If facility is not available intubate in single roomTreatment algorithms and cognitive aids needed should be displayed in the room.
2. Airborne precautions: For all staff in attendance: Fit check N95 mask, Goggles or face shield, Impervious gown, Gloves
3. Limit number of persons present at intubation site to 3, intubator, assistant and nurse.
4. Plans for difficult airway discussed beforehand.
5. Procedure to be done by the most qualified staff with the minimum number of health care personnel present as are required to undertake a safe intubation.
6. Video laryngoscopes should be used preferentially
7. Mac Coy Blades / intubating stylets use to minimise duration and easiness of intubation.
8. Oral Intubation preferred.
9. Preoxygenate-**Spontaneous** breathing with high FiO_2 to minimise Bag mask ventilation
10. Use of viral filter on bag mask Circuit
11. Clamp endotracheal tube while intubating.

12. Post intubation positive pressure ventilation started only after inflating the ETT cuff and confirming position of ETT (ideally with $EtCO_2$)
13. Endotracheal tubes with sub glottic suction aid preferred
14. Closed suction device to be used to prevent disconnections of circuit for removal of secretions
15. All intubation equipment including those for Difficult airway should be near the patient to prevent multiple exits& entry of health care personal.

V. TRANSPORT OF PATIENT:

1. Movement of patients with COVID-19 should be limited with all efforts made to ensure the patient is initially admitted to the appropriate location.
2. Non-intubated patients should be transferred wearing a surgical mask over their oxygen delivery device.
3. All staff must wear airborne PPE.
4. Once a patient is admitted to the ICU, transport outside of the ICU should be limited. If transport is required, then coordination at a senior level is mandatory to ensure safety standards are maintained
5. Hallways must be cleared where possible and only essential staff should accompany the patient. Staff not involved in the transfer should not come within 2 metres of the patient.
6. Intubated patients should have closed circuits with a viral filter in situ.

VI. PEEP: Optimal PEEP -one that has adequate oxygenation without affecting oxygen delivery to tissues. (Does not affect hemodynamics)

- Step wise increment of PEEP at 2 increments monitoring hemodynamics.
- Static compliance method

1. Volume controlled Ventilation
2. Set pressure limit 10-15 cm H_2O above ventilating pressure (or per institutional policy).
3. Turn ventilator sighs off for the procedure if being used.
4. Explain the procedure to the patient and to be as relaxed as possible.
5. Sedation sos
6. All measurements be obtained under the same conditions
7. Upright as possible.
8. Determine the static compliance at 0 cm PEEP.
9. The tidal volume, peak and plateau pressures should be noted.
10. Vt/Pplat-PEEP= Static compliance
11. Determine Static compliance at 3,6,9,12,15 cms H_2O

12. The patient should be placed on the lowest PEEP level providing the greatest static compliance

VII. Recruitment: On a case to case basis. Methods:

1. 40cmH_20 for 40-60 seconds
2. 3 consecutive sighs/min with a plateau pressure of 45cmH_2O
3. 2 minutes of peak pressure of 50cmH_2O and PEEP above upper inflection point (obese/trauma patients may require >60-70cmH_2O)
4. long slow increase in inspiratory pressure up to 40 cmH_2O (RAMP)
5. stepped increase in pressure (Staircase Recruitment Maneuver)

VIII. General care of Critically ill patients in ICU:

1. VAP prevention
2. Spontaneous Awakening & breathing Trials
3. Change in position 2Hourly
4. DVT Prophylaxis
5. Stress related mucosal disease prophylaxis
6. Nutrition
7. Psychological support
8. Debriefing

IX. Cardiac Arrest:AHA 2015 with modification to limit transmission

Recognise cardiac arrest. Look for absence of signs of life and normal breathing and feel for carotids. Do not listen or feel for breathing by putting your ear or cheek close to patient's mouth.

- Avoid mouth to mouth or pocket mask ventilation
- The staff **should have** gown, gloves, eyeshield or goggles before starting CPR (complete aerosol generating procedure PPE).
- Start CPR with chest compression.
- If patient is having oxygen mask before start of CPR leave it in situ to limit spread of aerosol. Otherwise if readily available put a mask and start CPR. Limit entry of people into the room during CPR.
- For bag and mask ventilation, connect HME or **bacterial filter** to it to limit aerosol generation. Use 2-person technique for bagging, one person to hold the face mask tight with E-V technique while the other ventilates to minimise aerosol generation.
- Identify and treat any reversible causes.
- Defibrillate shockable rhythms rapidly

Reference

1. WHO:Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected Interim guidance 13 March 2020
2. The Australian and New Zealand Intensive Care Society (ANZICS) COVID-19 Guidelines Version 1
3. Government of India Ministry of Health & Family Welfare Directorate General of Health Services (EMR Division) Guidelines on Clinical Management of COVID – 19
4. WHO:Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected Interim guidance 25 January 2020
5. Resuscitation council UK. Resuscitation of COVID – 19 patients in hospital. March 2020. (reference for cardiac arrest recommendations)
6. COVID-19 pneumonia: different respiratory treatment for different phenotypes? L. Gattinoni , D. Chiumello , P. Caironi , M. Busana , F. Romitti1 , L. Brazzi4 , L. Camporota
7. Gattinoni et al, 2020 – Covid-19 Does Not Lead to a "Typical" ARDS -INTENSIVE Review Aidan Burrell

FiO_2-PEEP TABLE

Lower PEEP/higher FiO2

FiO_2	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7
PEEP	5	5	8	8	10	10	10	12

FiO_2	0.7	0.8	0.9	0.9	0.9	1.0
PEEP	14	14	14	16	18	18-24

13. **Interim Guidelines on Clinical Management of COVID 19 Infection In Children**

Coronavirus disease 2019 (COVD-19) caused by SARS COV 2 (severe acute respiratory syndrome coronavirus 2) is rarer in children compared to adults. Incidence of disease in children has been reported to be around 2% in most studies . Exact cause of lower incidence is not known. It may be due to lower susceptibility or higher incidence of asymptomatic disease in children. Nevertheless severe manifestations and deaths are being increasingly reported in children and they can act as an important source of infection for adults and health care workers as they cannot follow cough etiquettes as efficiently as adults.

COVID suspect

All symptomatic children (cough / sorethroat / URI / Diarrhea / shortness of breath with or without fever) who have

- a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset.
- history of contact with suspected or confirmed case of Covid 19 in last 14 days prior to symptom onset.
- severe acute respiratory illness in the absence of an alternative diagnosis that fully explains the clinical presentation.

Testing

Indications for sending Nasopharyngeal swab for confirmation of Covid 19 Infection include

- Children suspected of having Covid infection, fulfilling the above criteria.
- Patients admitted with severe acute respiratory infection (SARI) irrespective of travel or contact history.
- Asymptomatic direct and high risk contacts of a confirmed case should be tested once between day 5 and 14 of coming in contact with the case (pooled RT – PCR).
- Children from containment zone with ILI.
- Children admitted in hospital with any other disease, who develop influenza like illness (ILI) in the hospital.
- Family clusters of ILI (2 or more cases)
- ILI in high risk population (children with comorbidities).
- Patients posted for elective surgeries (pooled RT – PCR) and emergency surgeries .

Covid 19 testing platforms

The preferred sample is nasopharyngeal. Nasal, throat swabs, ET aspirates and bronchoalveolar lavage may also be tested. The various methods of testing for Covid 19 include RT PCR: This is the gold standard for detecting Covid - 19 cases. It takes 4- 5 hours for running the test. Up to 96 samples are tested at time. Nasaopharyngeal swabs need to be transported in viral transport medium maintaining cold chain.

Pooled RT PCR: Pooled samples of 5 patients are tested by RTPCR. If positive then individual testing is done by RT PCR to identify and confirm disease in the affected. For this samples are collected in tubes containing 0.5ml of viral transport medium.
CBNAAT: It has a quick turnaround time of 30 - 60 minutes but only 1- 4 samples can be tested at a time. For CBNAAT, the samples may be sent in the standard viral transport medium. By far it is the costliest of the molecular tests for Covid.
TrueNat: It is an indigenously developed portable version of CB NAAT. It is the cheapest of the molecular based tests for covid - 19. Swab samples are collected in viral lysis buffer, hence biosafety and biosecurity requirements for use of TrueNat machine is minimal. It comprises of two steps (ICMR guidelines may 2020)
Step 1: screens for E gene. If negative it is considered true negative. If positive needs confirmation by step 2 assay.
Step 2: confirmatory assay for RdRp gene . All positives are taken as true positive and further confirmation by RT PCR not required.
Rapid antigen test: It is a point of care test which yields result in15 - 30 minutes. It sensitivity ranges from 50- 84% and specificity 99-100%. So those positive do not need a retesting, but those negative may not be real true negatives. Hence if suspicion is high, needs retesting with RT PCR.
IgG antibody test: It is only for surveillance and not for diagnosis. It helps to detect seroprevalance to plan public health interventions. May be done in high risk or vulnerable population to know who has been infected in the past.

Clinical Features

Incubation period ranges from 2 - 14 days, with a median time of 4-5 days. Asymptomatic and presymptomatic infection has also been reported. Clinical syndromes associated with COVID infection include mild uncomplicated illness with fever, sore throat, malaise, cough, diarrhoea or vomiting, mild pneumonia, severe pneumonia, ARDS, sepsis and septic shock with multi organ involvement. There is limited timeline data for infections in children. Adult literature suggests admission to hospital occurs approximately 7 days following symptom onset with onset of severe respiratory distress symptoms approximately 9 to 12 days after symptom onset. Covid illness most often starts with mild symptoms like dry cough and sore throat. 10% of patients may present with GI symptoms like diarrhoea and vomiting, while rhinorrhea is relatively rare (7.5%). Anosmia, ageusia and GI symptoms may precede development of respiratory symptoms. Patients may also complain of myalgia, headache, and fatigue. Fever and cough are seen less frequently in children than adults. Elderly and immunocompromised may present with atypical symptoms like fatigue, reduced alertness, reduced mobility, diarrhoea, loss of appetite, delirium, and absence of fever. Leucopenia is uncommon in children compared to adults. At admission 30% of symptomatic children may have leucopenia and 10 - 20% may have elevated CRP. Leucopenia and CRP > 10mg/dl has been found to be associated with pneumonia (12).

Clinical progression and complications

Clinical course may be hyper acute with rapid onset of fever and breathlessness or moderate with slower progression of symptoms and later recovery or biphasic with late progressive worsening and multi organ involvement. Illness severity can range from mild to critical. In study from china of > 44000 persons with Covid, 81% of infections were mild (mild symptoms upto mild pneumonia), while 14% had severe symptoms like hypoxia, dyspnea or > 50% lung involvement in chest xray, while 5% had critical illness (respiratory failure, shock or multiorgan failure). Studies in children have reported fewer severe (5%) and critical illness (0.6%) (3)

Multisystem inflammatory syndrome in children (MIS-C) may occur weeks after a patient is infected with Covid-19(4). MIS – C should be considered in any individual less than 21 years of age presenting with fever with high inflammatory markers (high CRP, ESR, Ferritin, Fibrinogen, D Dimer, LDH, IL- 6, elevated Neutrophils, low lymphocytes, Low albumin etc) with multi system (>2) organ involvement causing severe disease requiring admission, with no plausible alternative diagnosis and evidence of recent or past Covid infection as evidenced by positive RT PCR, antibody or antigen study or exposure to a suspected or confirmed Covid 19 case within the 4 weeks prior to admission.

Risk factor for severe disease

Age is an important risk factor. Case fatality rate is more in elderly, infants less than 1 year and in those with comorbidities like chronic lung, liver, kidney, neurological disease and in those with congenital or acquired immunodeficiency. Case fatality rate in children is less than 1%. Lymphopenia, neutrophilia, elevated SGOT, SGPT, LDH, CRP, Ferritin and D dimer is associated with more severe illness.

Reinfection and persistent RT PCR positivity

There is no conclusive data on possibility of reinfection with SARS COV- 2. Viral RNA shedding decreases with resolution of symptoms but may continue for days to weeks. Median range of viral shedding in hospitalised patient is 12 – 20 days. Presence of RNA during convalescence does not necessarily indicate viable infectious virus. Detection of IgM and IgG antibody often correlates with clinical recovery and immunity.

Triage

Hospitals should preferably establish a 3 tier triage system. At the point of first contact which is often the out-patient counter or hospital entry in case of non emergency patients, history of international travel or travel to hotspot areas with community trans- mission in the last 14 days or contact with suspected or confirmed cases should be elicited and all those with positive history should be directed to the Covid isolation area. Patients with positive history and their care takers should be offered a triple layer surgical mask and directed to the designated Covid isolation areas. In the Covid isolation areas the patients should be triaged for severity of infection.

Patient placement :

- Patients may be admitted in single rooms or in designated Isolation wards.
- There should be a double door entry with changing room and nursing station.
- All healthcare workers should use PPE (N95 mask, eye protection, gloves and gown) when entering a patient room and remove PPE when leaving.
- If possible, use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). Equipment which is reused should be disinfected appropriately. Place an appropriate container with a lid outside the door for equipment that re- quires disinfection or sterilization.
- Avoid patient movement and transport unless absolutely necessary.
- Aerosol-generating procedures (i.e. open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation) whenever possible, should be done in adequately ventilated single rooms , preferably negative pressure rooms with minimum of 12 air changes per hour or at least 160 litres/second/patient in facilities with natural ventilation. These rooms may have standalone air- conditioning. These areas should not be a part of the central air-conditioning. If air-conditioning is not available negative pressure could also be created through putting up 3-4 exhaust fans driving air out of the room. These procedures should be done after donning complete PPE, including gloves, long-sleeved gowns, eye protection, and fit tested particulate N 95 masks.
- Used PPEs should be disposed off as per the BMWM guidelines. Ensure these bins (dirty) are inside the isolation areas.

Clinical Management

All children with suspected COVID infection should be categorised into 3.

Category	Clinical features	Clinical severity	Treatment
Category A	Mild sore throat, cough, rhinorrhea, diarrhoea, vomiting	Mild	Symptomatic treatment. Avoid NSAIDS other than paracetamol. Use oral bronchodilators or MDI for those with wheeze. Maintain adequate hydra- tion. ORS and zinc for those with diarrhoea and vomiting

Category B	Fever, severe sore throat, increasing cough Category A symptoms in children with chronic heart, kidney, lung, neurological or liver disease and children on long term steroids, congenital or acquired immunosuppression.	Mild	Oseltamivir 3mg/kg/dose BD till nasopharyngeal swab results are available if criteria for treatment of ILI fullfilled. Hydroxychloroquine 6.5mg/kg/dose BD on day 1 f/b 3.25mg/kg/dose BD for 4 more days Azithromycin 10mg /kg OD on day 1 followed by 5mg/kg OD on days 2 to 5. ECG should be taken prior to starting treatment to look for QT prolongation. zinc 2mg/kg/day.

Categorisation based on disease severity

Patients may be further categorised also based on disease severity according to the national guideline June 2020.

Mild: uncomplicated upper respiratory infection with fever, sore throat, rhinorrhea etc without breathlessness or hypoxia.

Moderate: Children with features of pneumonia without danger signs (Respiratory rate : < 2 months: ≥ 60/mt ; 2–11 months: ≥ 50/mt ; 1–5 years: ≥ 40/mt), spo2 90- 94%

Severe: spo2 < 90%, presence of danger signs like inability to feed, grunting, lower chest in drawings, altered sensorium, seizures etc.

Mildly symptomatic patients (Category A):

Patient placement: These patients can be sent home or to CFLTC with supportive treatment. They can also be treated at community health centres, district and sub district hospitals. They should stay away from elderly people, pregnant ladies, other children and patients with comorbidities (5). Clean frequently touched surfaces with 1% Sodium hypochlorite solution and toilet seats with household bleach or phenolic disinfectants. Wash linen separately with detergent and dry. Patient should follow strict personal hygiene including frequent hand washing and use of masks..

Testing

All category A patients with history of contact with a confirmed case of COVID 19 or coming from areas with community transmission should be tested for COVID 19 with nasopharyngeal swab RT PCR.

Treatment

- Symptomatic treatment: Avoid giving NSAIDS other than paracetamol for fever.
- Provide oral bronchodilators or MDI with spacer and mask for children with wheeze. Use of nebulisers should be avoided due to the risk of aerosolisation. Even though it is unclear if visible aerosols come from patients airway during nebulisation.
- Ensure euvolemia. Advice adequate fluid and feed intake. Provide advice regarding use of ORS and other home available fluids in case of diarrhoea and vomiting
- Categorisation should be reassessed every 24 -48 hours.

Category B patients

(patients with fever/increasing cough/ category A symptoms in patients with comorbidities)

Patient placement

These patients need admission. All category B patients should be admitted in single rooms or designated Covid isolation areas.

Monitoring

Daily monitor vitals including spo2, work of breathing and temperature.

Testing

Nasopharyngeal swabs must be sent for confirmation of disease by RT PCR in viral transport medium maintaining cold chain.

Chemotherapeutics

Children with ILI who fulfill the criteria for treatment can be started on Oseltamivir 3mg/kg/dose BD till nasopharyngeal swab results are available.. Antibiotics may be started as per treating physicians discretion if deemed necessary to cover community acquired pneumonia including atypical pneumonia according to local antibiogram. Once swab report is available and diagnosis confirmed Oseltamivir may be stopped and patient started on Hydroxychloroquine 6.5mg/kg/dose BD on day 1 followed by 3.25mg/kg/dose BD for 4 more days along with zinc 2mg/kg/day. (role of these chemotherapeutic drugs are still not proven and future guidelines may have a change in recommendation). Azithromycin 10mg /kg Od on day 1 followed by 5mg/kg OD on days 2 to 5. ECG should be taken prior to starting treatment to look for QT prolongation.

Moderate symptoms (Category C)

Admit these patients preferably in dedicated Covid care hospitals, District hospitals, Medical colleges or other tertiary care hospitals catering to Covid patients.

Send nasopharyngeal swab for confirmation of Covid 19 infection.

Respiratory support

Give supplemental oxygen therapy immediately to patients with SARI and respiratory distress or hypoxaemia (Spo2<94%) .

Target Spo2 92- 96% for patients on oxygen therapy (6)

Nasal prongs or cannula are preferred in children as it may be better tolerated.

Offer surgical mask or hood covered by surgical mask to decrease risk of aerosolization and droplet spread.

If on prongs and SpO2 less than 92% with minimal respiratory distress, options include

a. Face mask at flow>5LPM (Fio2 40 - 60%)
b. Oxygen hood at flow > 5LPM (Fio2 30-90%)
c. Venturi mask (28 -60% Fio2)
d. Non rebreathing mask at flow 10 - 15LPM (Fio2 80 - 90%)

○ Awake proning has been advised as a rescue therapy in adults.Typical protocols include 30–120 minutes in prone position, followed by 30–120 minutes in left lateral decubitus, right lateral decubitus, and upright sitting position. Doing proning in children may be more difficult and needs close supervision

Investigations

For patients with respiratory signs and symptoms especially those on oxygen therapy, take chest xray. HRCT may pick up lesions before X ray but may not be feasible to take in all settings.

Daily: 12 lead ECG, CBC with absolute lymphocyte count (Lymphopenia is rare in children), RFT, LFT (SGOT, SGPT, PT INR, S Bilirubin).

Once in 48 to 72 hours: ferritin, D Dimer, CRP.

Monitoring

Monitor for worsening of symptoms like increased work of breathing, increasing oxygen demand or shock.

Drug treatment

Hydroxychloroquine 6.5mg/kg/dose BD on day 1 followed by 3.25mg/kg/dose BD for 4 more days along with azithromycin 10mg /kg OD on day 1 followed by 5mg/kg OD on days 2 to 5. ECG should be taken prior to starting treatment to look for QT prolongation.

zinc 2mg/kg/day.

If patient on oxygen support -

- Remedesivir 5mg/kg IV (max. 200mg) loading dose over 30 - 120 minutes on day 1 followed by 2.5mg/kg (max.100mg) IV OD on days 2- 4.
- Start methyl prednisolone IV 1mg - 2 per kg per day.

- Prophylactic low molecular weight heparin may be started if no contraindication at a dose of 1mg/kg s/c OD. In case of unavailability of remedesivir , Lopinavir/ ritonavir combination may be given along with HCQ.

Lopinavir ritonavir combination has not shown much promise as an effective treatment for Covid 19 infection. Favipiravir used in adults, is not yet licensed by DGCI for use in children. It is a teratogenic drug hence contraindicated in pregnancy. Favipiravir may be given in a case to case basis if deemed necessary after state medical board concurrence .

Category C patients (severe and critical disease)

Patient Placement

According to the severity of disease these children may.require either HDU or ICU care. Depending on the infrastructure, patient load and staff competence in managing sick children patient placement may vary from institution to institution. All children with moderate to severe ARDS (P/F ratio less than 200 / OI >8 / OSI > 7.5 while on CPAP of minimum 5 cm), shock, multi organ involvement and those with Spo2 < 94% with increased work of breathing (> 2site retraction/ paradoxical breathing / see saw breathing / head bobbing etc.) should be preferably admitted in PICU

Treatment of severe and critical patients

Monitoring

Vital signs: including heart rate, RR and Spo2, Blood pressure

Work of breathing: Watch out for increased work of breathing like retractions especially more than 2 site retractions, grunting, head bobbing, air hunger, large tidal volume breaths etc as these may indicate need for escalation of respiratory support inspite of having acceptable oxygen saturation.

Oxygen requirement: Monitor Oxygen requirement and provide appropriate oxygen delivery device. Target spo2 is≥ 94% during resuscitation and 92 - 96% for those on oxygen therapy.

Laboratory investigations

Routine investigations: CBC with differential count and ESR, CRP. Unlike adult patients with COVID-19 there have been no consistent leukocyte abnormalities reported in paediatric patients

Organ functions: RFT, LFT, Coagulation Profile, ECG daily. Chest X-ray may show patchy infiltrates consistent with viral pneumonia and chest CT scans may show nodular ground glass opacities and evidence of peripheral consolidation which which may later progress to involve the whole lung fields.

Risk markers : CRP, D Dimer, Ferritin, Troponin I. Send these in all patients with severe or critical disease admitted in HDU or PICU every 48 hrs and in those with worsening respiratory status. D Dimer may be sent in in all those with hypoxia to look for evidence of microthrombi

formation especially in pulmonary vasculature con- tributing to hypoxia. Elevated D Dimer is an independent risk factor for mortality in adults.

Hyperinflammatory syndromes

Some patients with Covid 19 infection may progress to multi organ failure due to hyperinflammatory syndromes like multi system inflammatory syndrome similar to Kawasaki disease, cytokine release syndrome or infection associated HLH often leading to multi-organ failure. Pointers towards hyper inflammatory syndromes include - Persistent high fever or reappearance of fever., rising CRP especially more than 100- 200 mg/L, doubling of ferritin in 24hours or very high ferritin levels (> 2000 - 10,000mcg/L), falling counts, rising or falling ESR, increasing CPK, LDH and new onset shock especially with elevated Top i/ TropT.

Tocilizumab:

Cytokine storm is an important cause of worsening of respiratory status with multi organ failure. Criteria for patients at high-risk for developing cytokine storm include Ferritin >300 ug/L with doubling within 24 hours , Ferritin >600 ug/L at presentation, CRP > 100 mg/L, LDH >250 and Elevated D-dimer (>1 mg/L) . Consider cytokine storm in patients with rapidly worsening respiratory gas exchange, radiographic infiltrates by imaging (chest x-ray, CT scan, etc.) and SpO2 ≤93% on room air or on greater than 6 L/min O2. Tocilizumab may be considered in patients with cytokine release syndrome grade 3 or 4.

Pediatric Dosing (<18yrs): < 30kg – 12mg/kg IV in 50 -100ml normal saline over 60 minutes > 30kg - 8mg/kg IV over 60minutes (max. 800mg per infusion).
Adult dose : 400mg IV over 60 minutes

Consider giving additional 2 dose 8-12 hours later if continued clinical decompensation Contraindications: Avoid in pregnancy and newborns. Mothers should stop breast feeding, if receiving tocilizumab Monitor liver enzymes in patients receiving tocilizumab. Serious adverse events: Gastrointestinal perforation, Anemia, Hepatitis, Infusion reaction

Steroids

Steroids may be considered in patients requiring oxygen support Dose: Methyl Prednisolone 1-2mg/kg/day for 5- 7 days. It may also be given to patients with grade 3 or 4 CRS with worsening respiratory status who cannot afford Tocilizumab. It may also be considered in patients with catecholamine refractory shock

Mulitisystem inflammatory syndrome in children: MIS-C has many similarities with KD but the median age of presentation is higher for MIS-C (10 years). GI symptoms like vomiting, diarrhoea and abdominal pain are often the initial presenting symptoms with high inflammatory markers. Some patients may present with features of acute abdomen. Many patients subsequently progress to develop cardiogenic shock in the next 5 -6 days. Global left ventricular systolic dysfunction is common but diastolic dysfunction, regional wall hypokinesis and right ventricular

dysfunction has also been reported. Only around 17% of patients show coronary dilatation. Troponin I elevations are only mild to moderate in most patients. Skin rashes, neurological, renal and haematological manifestations can also occur.

Echocardiography, ECG, trop T/I, BNP or NT Pro BNP should be done in all suspected cases of MIS-C. History of immunodeficiency is risk factor for abnormal inflammation / HLH. Testing

Send nasopharyngeal swab for Covid 19 RT PCR. Serum sample should be taken for covid antibody test before IVIG administration and needs to be checked if facility available and RT PCR negative

Multisystem inflammatory syndrome in children		
Clinical features	**Laboratory inflammatory markers**	**Imaging**
Persistent fever Mucositis at any site Cervical lymphadenopathy Extremity changes Polymorphous rash Hepato-splenomegally Abdominal pain +/- diarrhoea ,vomiting	high CRP (>100mg/dl), ESR, Ferritin, Fibrinogen, D Dimer, LDH, IL- 6, elevated Neutrophils, low lymphocytes, Low albumin , raised CPK, BNP/ NT pro BNP	Echo: LV / RV dysfunction /regional wall hypokinesis/ pericardial effusion, valvulitis, coronary artery dilatation USG: colitis, ileitis, lymphadenopathy, ascites, hepatosplenomegaly CXR - patchy symmetrical infiltrates, pleural effusion.

Treatment

Fluid resuscitation: resuscitate judiciously with normal saline 5 - 10ml/kg over 20mts if patient has features of shock, looking for features of fluid overload like hepatomegaly, respiratory distress, basal crepitations These children usually do not tolerate large volume fluids in excess of 20ml/kg.

After taking sample for blood culture start antibiotic to cover sepsis or TSS (ceftriaxone + clindamycin)

Inotropic support as per physiological status. If BP maintained above 5th centile with poor perfusion Dobutamine may be started at 8 -10mcg/kg/minute and titrated.If patient hypotensive after fluid resuscitation titrate adrenaline 0.05- 0.3mcg/kg/mt. Respiratory support: Appropriate respiratory support may be provided as per childs respiratory and cardiovascular status.

IVIG 2gm/kg slow IV infusion may be started if MISC is diagnosed by clinical and laboratory markers. Sample for serology should be taken before starting IVIG. Methyl prednisolone may be indicated in refractory cases.Covid positivity is not a contraindication for use of steroids.

Respiratory support in severe cases

If a saturation of > 95% is achieved by flow of 15LPM oxygen, it indicates the shunt fraction is mild. Failure to achieve this indicates a moderate-severe shunt fraction. These children should be closely monitored for deterioration and respiratory support to be escalated as per need.

Heated humidified high flow nasal cannula (HFNC) may be used preferably over NIV if the target saturation is not achieved with routine 1st line oxygen delivery de- vices (nasal prongs, NRM, nasal mask, Venturi , oxygen hood). It should be used only in patients with hypoxemic respiratory failure. It increases the risk of aerosolization but the risk is less than that for NIV.

- Switch on the machine only after fixing the nasal cannula.
- Start at 0.5 - 1litre per kg per minute and increase upto 2litre /kg/mt if needed.
- Use minimal flow that makes the baby comfortable
- Target spo2 92 - 96%
- Monitor HR and RR. Monitor closely. If no response in 1-2 hours will need escalation of support.

Jackson Rees with cushioned mask: It can provide oxygen at high fio2 and requires lesser oxygen flow than Baines circuit as dead space less. It also provides peep with minimal aerosolisation. It can be fixed using harness.

NIV CPAP: It may be offered only in selected patients with hypoxemic respiratory failure. Failure rate with NIV is very high especially in de novo respiratory failure so these patients need close monitoring.

- Use of conventional ventilators for NIV with non vented oro nasal masks / helmets preferable .
- Avoid using dedicated NIV with single limb and vented masks as the risk of aerosolization is very high.
- Connect a bacterial/ viral filter at exhalation port
- Use lowest possible PEEP to achieve targets
- Monitor closely for deterioration and intubate if patient deteriorates or there is no improvement in 1 hour or delivered tidal volume is more than 9.5ml/kg with increased work of breathing as P- SILI may damage the lung further
- Placing of aerosol box with ports covered by surgical mask may decrease risk of aerosolization.

Mechanical ventilation: it may be offered to children who do not respond to above respiratory support interventions. Indications include

- Spo2 less than 90%/ P/F ratio less than 150 not responding to above measures
- Severe respiratory distress including high tidal volumes of more than 9.5ml/kg in NIV
- Refractory shock
- Altered mental status with GCS less than 8

Airway management

Airway management should be SAS (safe, accurate, swift). Safe for patient and staff, Accurate, avoiding unfamiliar, unreliable and repeated techniques and Swift i.e timely without rush or delay.

- There is no emergency intubation in pandemic
- Unplanned intubation will harm both pa-ent and health care worker increasing risk of spread of infection and worse outcome.
- Perform intubation only after donning complete PPE
- Limit number of persons present at intubation site to 3 . Intubator, assistant and Nurse.
- If facility available intubate in a negative pressure room with > 12 air changes per hour or 160 litres /second / pa-ent in areas with natural ventilation and then shift to main ICU preferably with the same facility to minimise aerosol genera-on and expo- sure to others.
- Treatment algorithm and cognitive aids needed like ET tube size, fixing length etc should be displayed in the room.
- All drugs needed should be preloaded preferably outside the room.
  Adrenaline 0.1ml per kg 1 in 10,000 solution
  Atropine 0.02 mg/kg (not needed as routine, use in case of bradycardia or as antisialogogue before ketamine or if using succinylcholine especially repeat dose)
  Ketamine 1- 2mg/kg
  Rocuronium 1. 2mg/kg or succinylcholine 1mg/kg
  Midazolam 0.2mg/kg
  Fentanyl 2mcg/kg or Morphine 0.1mg/kg
- Ensure full neuromuscular blockade before attempting intubation to limit aerosol generation and clamp ET tube before intubation.
- Use aerosol box or intubate under transparent sheet to minimise aerosol generation.
- Fluids and inotropes may be started if hemodynamically unstable before intubation.
- Intubation is preferably performed by the most experienced person to minimise exposure and attempts.
- Preoxygenate preferably allowing spontaneous breathing with NRM , anaesthetic bag or Jackson Rees with face mask for 3 minutes. . Manually bag only if respiratory efforts poor or oxygenation not maintained.
- If bag and mask ventilation needed. Connect HME or bacterial filter to it to limit aerosol generation. Use 2 person 2 handed technique for bagging, one person to hold the face mask tight while the other ventilates to minimise aerosol generation by decreasing leak.

- Video laryngoscope is preferred if available over direct laryngoscope for intubating children with suspected COVID infection.
- Connect ventilator tubings to the ventilator with bacterial / viral filter at exhalation port and set the initial settings beforehand. Inline closed suction and HME filter if being used should also be connected to the tubings beforehand. Post intubation inflate cuff and baby may be directly connected to the ventilator tubings without bagging if possible.
- Check position of ET tube by clinically looking for chest rise , ET co2 if available and check Xray.
- Clean room 20 minutes after aerosol generating procedure or intubation done.
- If intubation failed after 3 attempts 2nd generation supra glottic airways like proseal LMA may be used if available.
- Place NG tube after intubation and ventilation established safely.
- Closed suction preferred over open suction in ventilated pa-ents. Use in-line catheters for airway suctioning and clamp endotracheal tube when disconnection is required (eg.transfer to a transport ventilator).
- Post intubation endotracheal sample should be taken for testing if needed (preferred over nasopharyngeal sample).

Supportive care

Keep patient in semi recumbent position and change position every 2 hours. Stress ulcer prophylaxis should be offered with sucralfate or PPI in patients with risk of bleeding. Change heat and moisture exchanger every 5 – 7 days, when it malfunctions or is soiled. Adult HME filters should not be used for small babies as it will increase dead space

Initial Ventilator setting

PCV mode is preferred in children. Titrate Fio2 to target spo2 of 90 - 94% or PaO2 60 - 80 mm of Hg. Pressure support over PEEP or PIP should be kept at a level that delivers tidal volume of 8 ml/kg predicted body weight for height to start with then decrease to achieve 6ml/kg TV if compliance poor. Keep initial PEEP at 6cm later can be titrated.

Ventilation goals

SpO2 90 – 94%, pH > 7.3 , P plateau < 28 (<31 if chest wall oedema plus) and driving pressure less than 15 cm H2O. If P plateau more than 28, decrease TV to 4-6ml/ kg predicted body weight. TV of 8ml/kg may be acceptable in L type phenotype with normal compliance especially if there is asynchrony or pH less than 7.15.

Covid 19 pneumonitis

The etiology of Hypoxia in Covid infection is multifactorial. It may be due to ventilation perfusion mismatch due to hyperperfusion of lungs initially followed by pulmonary thrombophlebitis causing pulmonary thrombosis in later stages of disease. Classical ARDS type

of lung pathology due to damage to basement membrane and secondary surfactant deficiency is also a cause of hypoxia in certain patients.

Identification of type of lung.

The two types of lung are not mutually exclusive. They often indicate 2 ends of the same spectrum. The lung which initially starts as L type often progresses to H type as the disease progresses. Ventilation strategies differ according to the type of lung. These 2 phenotypes are not mutually exclusive, they may indicate lung in different stages of evolution of disease. Increased work of breathing contributes to lung damage by increasing patient self inflicted lung injury (P- SILI) and is responsible for transition from L Type to H Type (8).

L type lung

This lung type with good compliance and hypoxia due to ventilation perfusion mismatch is characterized by upright pressure volume loops, attainment of good tidal volumes by low PIP, well aerated lung in USG with A lines.

These patients can be ventilated at 6 – 8ml/kg TV and PEEP 6 – 8cm of H2o. If hypoxia persists prone ventilation may be considered. Higher titration of PEEP is not beneficial as amount of recruitable lung is low. Low molecular weight heparin 1mg/kg Sc OD may be started if there is no contraindication and after assessing risk of bleeding.

H type lung

This is the classical ARDS lung with low compliance characterized by low lying Pressure volume loops, closed flow scalars, need of high pressures to attain 6ml/kg TV. In these patients PEEP may be titrated looking at compliance and hemodynamic status. Refractory hypoxia should be managed with titration of PEEP and prone ventilation of 12 – 16 hrs /day. Recruitment manoeuvres though not routinely recommended may be tried in refractory cases at 30cm of H2O for 15 seconds after ensuring absence of air leak and patient should be closely monitored during procedure for hemodynamic compromise.

Proning

Consider proning if P/F ratio <150 while being ventilated with FiO2 >0.6 and PEEP >5 cm H2O. Keep prone for 16 -18 hours if possible.

Shock

Any hypotension (systolic blood pressure [SBP] < 5th centile or <70 + age X2 for 1- 10 year old or > 2 SD below normal for age or cold extremities with capillary refill > 3 s and a weak and fast pulse.

- Give 10–20 mL/kg crystalloid (NS/RL/PL) as a bolus in the first 30–60 minutes and reassess for signs of fluid overload after each bolus [1]. If cardiogenic shock is suspected

give careful fluid bolus of 5 -10ml/kg over 30 Mts looking for features of fluid overload like increase in liver size, basal crepitations or worsening respiratory distress.

- Look for evidence of cardiac injury in patients with shock with clinical examination, bedside echo and cardiac enzymes Trop T or trop I.
- Do not use synthetic fluids for resuscitation
- Do not use albumin as the initial fluid for resuscitation.
- Epinephrine or Norepinephrine may be used as the initial inotrope (in adults Norepinephrine preferred while in children adrenaline is the initial inotrope of choice) in fluid refractory shock. Further titration depends on hemodynamic parameters.
- Noradrenaline may be added to adrenaline if hypotension persists inspite of fluid and adrenaline.
- In patients with evidence of cardiac dysfunction and persistent hypoperfusion in spite of fluids and norepinephrine add dobutamine over increasing dose of nor- epinephrine.
- In case of catecholamine refractory shock low dose hydrocortisone 2- 4mg/kg/ day may be used as continuous infusion or intermittent dose.
- Specific therapy: No specific antiviral therapy is definitely proven to be effective as per current available literature. Drugs being used in clinical trial settings include
    - Hydroxychloroquine / Chloroquine
    - Remedesivir
    - Nitazoxanide
    - Ivermectin
    - Favipiravir

Hydroxychloroquine : 6.5mg /kg /dose (Max 400mg) PO BD day 1 followed by 3.25mg per kg PO BD (max 200mg/dose) for 4 days. Treatment duration: 5 days. In select patients with extended ventilation or profound immunosuppression duration may be extended. Avoid taking hydroxychloroquine with antacids. Separate administration by at least 4 hours Adverse events: Retinopathy, rash, nausea, glucose fluctuations, and diarrhea. GI symptoms can be mitigated by taking hydroxychloroquine with food. Contraindications: QT prolongation > 500 msec, porphyria, myasthenia gravis, retinal pathology, epilepsy. If baseline QT prolongation is present take frequent ECG.

Chloroquine: Hydroxy chloroquine is preferred over chloroquine. 10 mg /kg chloroquine sulphate base stat followed by 5mg per kg 12 hours later and then 5 mg / kg/ dose BD for 4 more days. Adult Dose: Chloroquine sulphate base 600mg (10mg/kg) stat followed by 300 mg 12 hour later followed by 300mg BD for 4 days.

Lopinavir / Ritonavir: May be considered in case to case basis after written consent and medical board concurrence in category C cases when Remedesivir is not available. Presently in adults favipiravir preferred over lopinavir in moderate cases .

14 days to 6 months : 16mg/kg/dose PO BID (based on lopinavir component)

< 15kg : 12 mg/kg/dose PO BID (based on lopinavir component)

15-25 kg: 200 mg/50 mg PO BID
26-35 kg: 300 mg/75 mg PO BID
>35 kg: 400 mg/100 mg PO BID
Adult dose : 400/100 PO BID

Duration of treatment: 14 days or 7 days after becoming asymptomatic.
Adverse events: Hepatotoxicity, pancreatitis, diabetes, QT prolongation, lipid elevations.

Remdesivir

EUA (emergency use authorisation) has been granted by FDA for use in children and adults with severe disease. It is yet to be approved by DGCI for use in children, hence should be administered only after written consent and medical board concurrence. Indicated in category C patients with moderate and severe illness on respiratory support.
Dose : 5mg/kg IV (max. 200mg) loading dose over 30 - 120 minutes on day 1 followed by 2.5mg/kg (max.100mg) IV OD on days 2- 4.
Duration of treatment: Usual duration 5 days. If no clinical improvement, duration may be extended to total 10 days.
Contraindications: AST/ALT > 5 times above upper limit of normal. Severe renal impairment, pregnancy and lactation.

Convalascent plasma

It may be considered as per state protocol for patients with moderate and severe disease. It is an off label use. It should be avoided in patients with IgA deficiency or immunoglobulin allergy. According to ICMR guidelines ABO compatible cross matched plasma with neutralising titre above the threshold level or plasma IgG titre against S - protein RBD above 1: 640 should be used.
Dose 10ml/kg.

Follow up sample and discharge

1st follow up sample is to be taken on the 10th day from the 1st day of positivity for asymptomatic and category A patients. For category B and C patients 1st follow up sample to be taken on the 14th day from the 1st day of positivity.
If test remains positive on day 14 repeat testing every alternate days till negative. The patient may be discharged if he/she has completed 14 days since onset of symptoms and no symptoms since last 3 days and test is negative.

References

1. Lu X, Zhang L, Du H, Zhang J, Li YY, Qu J, et al. SARS-CoV-2 Infection in Children. N Engl J Med. 2020 Apr 23;382(17):1663–5.

2. Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Corona virus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Centre for Disease Control and Prevention. JAMA. 2020 Apr 7;323(13):1239–42.
3. Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, et al. Epidemiology of COVID-19 Among Children in China. Pediatrics. 2020 Mar 16;e20200702.
4. Viner RM, Whittaker E. Kawasaki-like disease: emerging complication during the COVID-19 pandemic. The Lancet. 2020 May;S0140673620311296.
5. Guidelines for home quarantine. [cited 2020 May 21]. Available from: https:// www.mohfw.gov.in/pdf Guidelinesforhomequarantine.pdf
6. Chen N, Zhou M, Dong X, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. Lancet 2020;395:507-13.
7. Clinical management protocol: Covid 19 Government of India Ministry of Health and Family Welfare Directorate General of Health Services (EMR Division) 13.6.20
8. Gattinoni L, Chiumello D, Caironi P, Busana M, Romitti F, Brazzi L, et al. COVID- 19 pneumonia: different respiratory treatments for different phenotypes? Intensive Care Med. 2020 Apr 14; s00134-020-06033–2.
9. Belhadjer Z , Meot M, Bajolle F et al. Acute heart failure in multisystem inflamma- tory syndrome in children (MIS-C) in the context of global SARS-CoV-2 pandemic 10.1161/ circulation AHA.120.048360
10. Riphagen S, Gomez X, Gonzalez-Martinez C, Wilkinson N, Theocharis P. Hyper- inflammatory shock in children during COVID-19 pandemic . Lancet 2020.
11. Verdoni L, Mazza A, Gervasoni A, et al. An outbreak of severe Kawasaki-like dis- ease at the Italian epicentre of the SARS-CoV-2 epidemic: an observational cohort study Lancet 2020
12. Paediatric Intensive Care Audit Network report on COVID-19 confirmed cases in PICU (published 23 June 2020): Universities of Leeds and Leicester.
13. Yang X, Yu Y, Xu J, et al. Clinical course and outcomes of critically ill patients with SARS-CoV-2 pneumonia in Wuhan, China: a single-centered, retrospective, observational study. Lancet Respir Med 2020.

Acknowledgement

WHO declared the COVID19 as a medical emergency on 18th January 2020 and that day the journey on the COVID track started for all of us. It was crucial for the medical fraternity to find out the ways of control the spread of infection and treatment for COVID.

As there was no knowledge at that point of time, all experienced the saying " We build the bridge as we walk……."

This document reflects the huge efforts taken by the medical fraternity all over the world as well as in the State of Kerala. The State Medical Board and the Institutional Medical Boards have done a stupendous job in formulating the management protocols and build the capacities of the clinicians. Their meticulous work enabled us to stand today at this juncture with the observation of containing the spread of COVID and reducing the mortality to the maximum extent possible. We appreciate their efforts and salute them for their untiring work in the wards and ICUs saving thousands of lives. Their work will inspire all of us to put up the next phase of interventions to control the pandemic.

Dr Rajan Khobragade
Principal Secretary
Govt of Kerala
Thiruvananthapuram

COVID-19 (nCorona) Virus Outbreak Control and Prevention State Cell

Health & Family Welfare Department

Government of Kerala

REVISED DISCHARGE GUIDELINES FOR COVID-19 PATIENTS

No.31/F2/2020 Health- 14th October 2020.

Reference: 1. Amendment to the revised discharge guidelines for COVID-19 Patients dated 1st July 2020- No 31/F2/2020/H&FW 21st July 2020 available at https://dhs.kerala.gov.in/wp-content/uploads/2020/07/Guidelines-Amendement-to-the-Revised-Discharge-Guidelines-of-COVID-patients.pdf

The following modifications has been made in the amendment to the revised discharge guidelines for COVID-19 patients (reference-1) admitted in health care institutions in Kerala State.

- **Category B** patients shall undergo rapid antigen test on **10th** day since onset of symptoms if they are asymptomatic on day of testing OR if symptoms persist after ten days, test one day after resolution of symptoms.
- **Category B & C** patients should be clinically stable with no excessive fatigability / exertional desaturation to be eligible for discharge among other criteria.

The table below summarises the revised discharge guidelines for COVID-19 patients:

CATEGORY	DAY OF 1ST FOLLOW UP TEST	RAPID ANTIGEN TEST RESULT	DISCHARGE	QUARANTINE
Asymptomatic	**10th** day since first positive result	Negative	**Discharge**	Avoid Non-Essential travel and social contact (like family visits, attend marriages,
		Positive	Repeat rapid antigen test every alternate day till	

			negativity for discharge	functions or work) for 7 days after Discharge. Adequate rest to be taken.
CAT-A	**10th** day since onset of symptoms if asymptomatic on day of testing OR -If symptoms persist after ten days, test one day after resolution of symptoms	Negative	**Discharge if:** - Completed 10 days since onset of symptoms -No symptoms since last 3 days	Avoid Non-Essential travel and social contact (like family visits, attend marriages, functions or work) for 7 days after Discharge. Adequate rest to be taken.
		Positive	-Repeat rapid antigen test every alternate day till negativity for discharge.	
CAT-B	**10th** day since onset of symptoms if asymptomatic on day of testing OR -If symptoms persist after ten days, test one day after resolution of symptoms	Negative	**Discharge if:** -Completed 10 days since onset of symptoms -No symptoms since last 3 days -Clinically stable (no excessive fatigability / exertional desaturation)	Avoid Non-Essential travel and social contact (like family visits, attend marriages, functions or work) for 7 days after Discharge. Adequate rest to be taken.
		Positive	Repeat rapid antigen test every alternate day till negativity for discharge.	
CAT-C or Disease in Immunocompromised (HIV positive, transplant recipients, Malignancy)	**14th** day since onset of symptoms if asymptomatic on day of testing	Negative	**Discharge if:** -Completed 14 days since onset of symptoms - No symptoms since last 3 days	Avoid Non-Essential travel and social contact (like family visits, attend

	OR -If symptoms persist after 14 days, test one day after resolution of symptoms - or as per Physician's orders		-Clinically stable (no excessive fatigability/ exertional desaturation)	marriages, functions or work) for 7 days after Discharge. Adequate rest to be taken.
		Positive	Repeat rapid antigen test every alternate day till negativity for discharge	

Principal Secretary

STATE AYURVEDA COVID-19 RESPONSE CELL

The Essential Drug List

FOR THE AYURVEDIC PREVENTION AND CONVALASCENT CARE IN COVID-19

Department of AYUSH,
Government of Kerala
4-15-2020

Guidelines for Usage

- The EDL is solely intended for the purpose of Ayurvedic prevention and convalescent care of COVID-19 at the Regional and District Ayurveda COVID-19 Response Cells as well as *Ayur Reksha Clinics* across the state.
- The medicines from the EDL shall be administered only under the strict guidance of registered Ayurvedic practitioners only.
- The administration of the EDL shall be in accordance to the approved annexures attached herewith.
- ***The EDL under any circumstances shall not be used as a cure of COVID-19 patients (with or with out laboratory confirmation) or individuals with symptoms of potential COVID-19 manifestations.***

Kasahayas

1. Indukantham
2. Nayopayam
3. Pathya Shadamgam
4. Elakanadi
5. Vyaghryadi
6. Drakshadi
7. Dasamoola Katuthrayam
8. Shadangam/Amruta Shadanagam (as panakam)

Choornam/Gudika

1. Sudarsanam Choornam/Gudika/Tablet
2. Vilwadi Gudika/Tablet
3. Aswagandha Choornam
4. Triphala Choornam
5. Guduchi Choornam
6. Yashti Choornam
7. Pippali Choornam

Ghrutham

1. Indukantham
2. Bruhat Chagaladi

Avaleham

1. Kooshmanda Rasayanam
2. Agasthya Rasayanam
3. Pippali Rasayanam
4. Amrutha Prasam
5. Chyavana Prasam

Annexures – Technical

Annexure 1

Guidelines for Healthy People

Non Pharmacological Interventions

Diet

a. Food: The lockdown reduces physical activity and at the same time can induce craving for food. It is important to refrain from overeating and especially indulgence in snacking and junk food. Here are some general guidelines:

- Eat only when you are hungry
- Avoid frequent snacking just to while away time. Snacks may be used only if you are really hungry. Dry fruits, homemade chips, boiled banana etc. are the options to select from.
- Reduce the quantity to ¾ or ½ of what you take on an active normal day.
- Rice gruel (Kanji) at least once a day is an ideal option
- Avoid or restrict the use of non-vegetarian food.
- Try adding ¼ teaspoon of dry ginger powder while cooking the rice. This will aid digestion. Good gut is the foundation of good health.
- 'Chammanthi' made of gooseberry (Nellikka) and ginger (inchi) can be a healthy and tasty recipe
- In curry, pastries, snacks, tiffin, soups, wherever possible, use green gram (cheru payar) liberally.
- Minimize the use of black gram (uzhunnu).
- Include locally available vegetables and fruits in the daily menu as per the availability. Bananas, Mangoes, Jackfruit, Guavas and other seasonal fruits available in our villages have good nutritional value. Use them according to one's digestive capacity. .
- Avoid pickles, hot spicy foods, and garam masala.

b. Beverages:

- The water for drinking may be converted into an excellent medicine by some simple techniques. See one example: boil the water with comfortable amounts of dry ginger, coriander seeds (malli), thulasi leaves, muthanga, panikkoorkkayila, ayamodakam (ajwain seeds), and turmeric. The quantities need not be that specific. Make it a tasty chukkuvellam. All members of the family can quench their thirst with this.
- Drink tea and coffee, the popular beverages of Kerala, sparingly during the lockdown. There are reports of sleeplessness, hyperacidity, heartburn and other similar issues caused by excessive use of tea and coffee.
- 'Chukkukaappi' may be a safer alternative, which is a simple digestive and medicinal beverage. Also try similar drinks like thulasikkaappi, mallikkaappi etc.
- Those who are familiar with diluted milk, or milk as such, try it with a piece of dry ginger (chukku) and a pinch of turmeric powder while boiling it. It is more helpful to improve the respiratory health. Goat's milk has an edge over cow's milk in this regard.
- Sarbath prepared out of nannari/naruneendi is a tasty and healthy option for healthy persons, but don't prepare with ice water.
- Diluted buttermilk (sambharam) with some salt, ginger and curry leaves is an exceptionally healthy drink. Buttermilk boiled with turmeric, dry ginger and curry leave (kaachiya moru) can keep the digestive tract healthy and smooth. This was a panacea of our ancestors.
- Avoid Curd.
- Avoid refrigerated water. It can invite throat infection. Please remember that sore throat of any sort may be suspected as an initial presentation of COVID. Don't jeopardize the health status of your respiratory tract.
- Don't use carbonated and alcoholic beverages of any sort.

Personal hygiene and Activities of daily living

- Go to the bed early at night and get up early in the morning. Sound sleep is an excellent tonic for the body and mind.

- Don’t opt to have a nap during daytime. Excessive sleeping is a good reason for weight gain.
- Don’t use an air-conditioner. Keep the windows open and the rooms properly ventilated. If at all using an AC, never set temperature to below 25 degrees. When you use a fan, don’t sit or lie down right below it, especially at night. These practices are to keep your respiratory tract healthy.
- Keep the day actively engaged in works that you can do at home. Prepare a timetable for the lockdown period.
- Start reading good books. During these days, reading can be developed into a healthy habit, good for the mind as well.
- Spend time with your loved ones.
- Try activities like cooking, painting, stitching, gardening, games, etc.
- Do things on a timetable.
- Be regular with the morning routines like brushing the teeth, toilet, bathing, etc. as the season is warm and humid in Kerala, wash your body twice and head once (preferably in the morning)
- Nasyam: put one drop of coconut oil or sesame oil in each nostril and inhale. This may be done in the morning before head bath.
- Don’t bathe immediately after a meal.
- Exercise moderately but regularly. An adult with moderate built shall exercise two times a day. It can be Yoga, Skipping, Treadmill, *Orbitrek* or something of that sort. Opt for those, which can be done indoors. Yoga has an edge over the others because it can be incorporated with pranayama and meditation, which will be excellent support for the mind as well.
- Keep good posture while sitting, lying down or standing. Faulty postures may end up in spinal disorders by the time we come out of the lockdown period.
- Keep yourself happy and composed. Stress is the biggest enemy of our immune system.

Hygiene of the premises

- Keep your home and surroundings clean. This is essential for prevention of all sorts of diseases.

- Manage the domestic waste properly. Don't allow mosquitoes, rats or other rodents to breed around.
- Smoke (dhoopanam) all the rooms of your house with herbs. Turmeric, Garlic, mustard, Neem leaves, and Salt. Aparajitha churnam is another option. If available vayambu, kottam, katukka, and yavam may also be used. These are all given as choices. Add a bit of ghee while doing the dhoopanam.

Pharmacological Interventions

Preventive Medical Practices

- For a healthy person, no medicine is needed. But certain preventive medical practices added on to the daily activities may give enhanced capacity to fight against infections. They are listed below:
    - Apply or put a drop of coconut oil in your nostrils in the morning after brushing teeth.
    - Warm gargle with water boiled with dry ginger, turmeric, panikkoorkkayila, and a bit of salt. This may be done after the nasal drops.
- Steam inhalation with turmeric, thulasi leaves and panikkoorkkayila in the evening.

a. Some medicines are helpful in improving the general health.
    i. 15 ML Indukantham kashayam diluted with 60 ML pre-boiled cool water may be taken two times a day before food.
    ii. 10 GM of Kooshmandarasayanam (for those with good appetite) or Agasthyarasayanam (for those with less appetite) may be taken two times a day after food. Dose may be adjusted according to digestive capacity.
    iii. Age appropriate modifications of dose and frequency of medicines are to be made by the medical team through the facility entrusted for the same by the Govt.

Annexure 2

CONVALESCENT PERIOD CARE

The Non-pharmacological intervention

1. Follow annexure 1.
2. Head bath shall not be regular during this period. Those who have residual symptoms like breathing difficulty may avoid head bath until the symptoms resolve. Use warm water for body and boiled cool water for head while bathing. Apply Rasnadi powder on the crown after head bath. Oil bath shall be started only after 7 days after recovery and on the advice of an Ayurvedic physician.
3. Strictly avoid contact with general public
4. Pranayama, yoga can be continued under medical advice
5. Strictly avoid pungent and sour foods and reduce salt intake.
6. Drinking water can be boiled with chittamruthu, chukku, Tulsi, jeerakam and ayamodakam as per availability.
7. cherupayar soup, banana / arrowroot powder soup with chukku and sarkara can be taken in the evening..
8. 1 teaspoon of small onion made into a paste with honey can be taken once or twice daily.
9. Milk boiled with turmeric and dry ginger can be taken once.
10. Keep yourself engaged in music, reading, communicating with friends and relatives, write down your experiences during the disease.

Pharmacological intervention*

1. Strictly continue all medicines prescribed by the physician during the COVID attack and the regular medicines prescribed for other comorbidities like diabetes
2. 15 ML Elakanadi kashayam with 45 ML boiled cool water and ½ teaspoon Jeerakappodi as mempoti two times a day. For non-diabetic patients, add 1 teaspoon honey also. Other options are :
    a. Dasamoolakatuthrayam kashayam
    b. Indukantham kashayam
    c. Vyaghryadi kashayam
3. Rasayana Chikitsa to be opted for to avoid potential sequel of the infection. Special consideration shall be given to major organs like lungs, liver kidneys etc. A list of medicines in this regard is given below:
    a. Kooshmanda rasayanam
    b. Agasthya rasayanam
    c. Amrutha prasam
    d. Chyavana prasam
    e. Pippali rasayanam
    f. Indukantham ghrutham
    g. Bruhat chagaladi ghrutham

*This needs medical advice from the facility provided for this purpose

Annexure 3

High risk like health care professionals and other field staff working with corona patients (without comorbidities*)

Non Pharmacological Interventions

1. Follow Annexure 1.
2. Try to sleep for 6 hours minimum
3. Practice deep breathing/yoga/pranayama every day. Find time to relax and exercise regularly. Specific exercise modules for this purpose are incorporated in this program
4. Keep yourself hydrated. Drink plenty of water. More advice in this regard is available in Annexure 1. Some extra options are given below:
    a. Limewater can be fortified with any of the above drugs like ginger, thulasi leaves, panikkoorkka etc, sugar candy would be more helpful instead of sugar.
    b. gooseberry (2-3nos) and cardamom(1no) can be used to make juice and take with Honey
    c. Black dry grapes- 20 nos is kept in water overnight, squeezed and juice can be taken with honey or sarkkara
    d. Dry ginger, coriander, jeeraka, uluva, tulsi leaves, elakkai can be slightly roasted, powdered and boil in sarkkara to make a syrup. This can be diluted with water and consumed.
5. Do not suppress your natural urges to urinate, pass motion etc.
6. Do steam inhalation twice (at least once) a day. More advice in this regard is available in Annexure 1.

Pharmacological Interventions

1. Follow Annexure 1.
2. Chyavanaprasam 10 GM shall be taken two times a day after food followed by ½ glass of milk boiled with dry ginger and turmeric.

**Cardiovascular Diseases, Diabetes, Hypertension, Chronic Respiratory Diseases, Cancer*

Annexure 4

General Guidelines for People with Comorbidities

1. Chronic Respiratory Ailments

I. Non Pharmacological Intervention

a. Diet: General directions in **Annexure 1** shall be followed
b. The food should be light and warm. As far as possible avoid late night meal
c. Never eat bellyful.
d. Avoid refrigerated food.

Drinking water: additional suggestions are listed below.

e. 10 Tulasi leaves / 2 panikoorka) + 1 teaspoon crushed coriander seeds + 2 pinch dried ginger powder boil in 1 litre water – can be used for drinking comfortably warm.
f. Chukkukaappi
g. Mallikkaappi
h. Thulasikaappi
i. Avoid milk and milk products in general
j. Avoid carbonated, refrigerated drinks

B. Activities of Daily Living

a. Breathing exercises/pranayama/yoga/physical exercises. (Special Instructions are given)
b. Avoid lying directly beneath the fan at night.
c. Avoid AC
d. Steam inhalation (Refer Annexure 1 for details). Cover the eyes during steam inhalation.
e. Gargling two times a day: (Refer Annexure 1 for details).
f. Nasyam: (Refer Annexure 1 for details).

II. Pharmacological Intervention

a. Special medicines shall be used as supportive measures in consultation with Ayurveda physician using the telemedicine facility provided by the Govt.

Annexure 5

General Guidelines for People with Comorbidities

1. Diabetes Mellitus

General Guidelines:

1. All regular medicines shall be continued without fail.
2. Keep monitoring the blood sugar values at regular intervals.
3. Follow the diet prescribed by your doctor.

I. Non Pharmacological Interventions

A. Diet
   a. Limit the amount of grains in your diet
   b. Wheat and Small millets like Ragi can be an alternative
   c. Whole green gram (Cherupayar) is a good option
   d. steam cooked foods are considered beneficial
   e. Special Precautions: Indian gooseberry (nellikka/amla) and turmeric are beneficial for improving general immunity and also to control diabetes. These can be used as:
      - 4-5 raw gooseberry + one small piece of raw turmeric (manjal) can be ground together to take the juice and can be taken once in a day.
      - Dry gooseberry powder- 1 tsp, turmeric powder -3 pinch, can be mixed in hot water and taken once a day.
      - Dry gooseberry powder- 1 tsp, turmeric powder -3 pinch can be boiled in 1 ½ glass water, to be reduced to ¾ glass and can be taken once a day.
   f. Fenugreek should be dry fried and made into powder and can be taken with hot water, ½ tsp once a day.
   g. 1 tsp triphalachoornam can be taken with luke warm water at bedtime for relieving constipation and is good for diabetes also.
   h. For drinking water: Boil 2 litres of water with ½ tsp coriander or ½ tsp cumin seeds with 10 crushed pieces of jackfruit leaf (plavila) petiole or mango leaf (mavila) petiole, and add 10 tulsi leaves or 2 panikkoorka (indian borage) leaf, when it starts boiling. Keep this closed for a while. And use as drinking water when cold.

II. Pharmacological Intervention

   a. Special medicines shall be used as supportive measures in consultation with Ayurvedic physicians using the telemedicine facility provided by the Govt.

Annexure 6

General Guidelines for People with Comorbidities

1. Cardiac Patients and Hypertensive Patients

General Guidelines:

1. All regular medicines shall be continued without fail.
2. Keep monitoring the blood pressure at regular intervals.
3. Follow the diet prescribed by your doctor.

I. Non Pharmacological Interventions

A. Diet
   a. Spicy, sour and fried items should be avoided.
   b. Salt intake shall be limited
   c. Add shallots, ginger, coriander, garlic, black pepper, turmeric, curry leaves etc shall be more included in daily foods.
   d. For panajalam: Boil 2 litres of water with ½ tsp coriander or ½ tsp cumin seeds with 10 crushed pieces of jackfruit leaf petiole (plavilanjettu) or mango leaf petiole (mavilanjettu), and add 10 tulsi leaves or 2 panikkoorka (indian borage) leaf, when it starts boiling. Keep this closed for a while. And use as drinking water when cold.
   e. Special Guidelines: 8 cloves of garlic, and ½ tsp cumin seeds are crushed and boiled with 1½ glass water and ½ glass milk and is reduced to ¾ glass. It is then filtered and taken once a day. (Those who don't prefer milk can use water alone). Or 5 flaps of garlic can be roasted, ground and eaten as such.

B. Activities of daily living
   a. Follow annexure 1.
   b. For exercise, follow special guidelines in that regard

II. Pharmacological Intervention

   a. Special medicines shall be used as supportive measures in consultation with Ayurvedic physicians using the telemedicine facility provided by the Govt.

Annexure 7

General Guidelines for People with Comorbidities

1. Cancer

General Guidelines:

1. All regular medicines shall be continued without fail. .
2. Follow the diet prescribed by doctor.

Follow the instructions of **Annexure 1.**

Annexure 8

High risk health care professionals and other field staff working with corona patients (with comorbidities*)

General Guidelines:

a. Follow the corresponding special annexure according to the specific comorbidity

Annexure 9

Ministry of AYUSH

Ayurveda's immunity boosting measures for self care during COVID 19 crisis

In the wake of the Covid 19 outbreak, entire mankind across the globe is suffering. Enhancing the body's natural defence system (immunity) plays an important role in maintaining optimum health.

We all know that prevention is better than cure. While there is no medicine for COVID-19 as of now, it will be good to take preventive measures which boost our immunity in these times.

Ayurveda, being the science of life, propagates the gifts of nature in maintaining healthy and happy living. Ayurveda's extensive knowledge base on preventive care, derives from the concepts of "Dinacharya" - daily regimes and "Ritucharya" - seasonal regimes to maintain healthy life. It is a plant-based science. The simplicity of awareness about oneself and the harmony each individual can achieve by uplifting and maintaining his or her immunity is emphasized across Ayurveda's classical scriptures.

Ministry of AYUSH recommends the following self-care guidelines for preventive health measures and boosting immunity with special reference to respiratory health. These are supported by Ayurvedic literature and scientific publications.

Recommended Measures

I General Measures

1. Drink warm water throughout the day.
2. Daily practice of Yogasana, Pranayama and meditation for at least 30 minutes as advised by Ministry of AYUSH (#YOGAatHome #StayHome #StaySafe)
3. Spices like Haldi (Turmeric), Jeera (Cumin), Dhaniya (Coriander) and Lahsun (Garlic) are recommended in cooking.

II Ayurvedic Immunity Promoting Measures

1. Take Chyavanprash 10gm (1tsf) in the morning. Diabetics should take sugar free Chyavanprash.
2. Drink herbal tea / decoction (Kadha) made from Tulsi (Basil), Dalchini (Cinnamon), Kalimirch (Black pepper), Shunthi (Dry Ginger) and Munakka (Raisin) - once or twice a day. Add jaggery (natural sugar) and / or fresh lemon juice to your taste, if needed.
3. Golden Milk- Half tea spoon Haldi (turmeric) powder in 150 ml hot milk - once or twice a day.

III Simple Ayurvedic Procedures

1. Nasal application - Apply sesame oil / coconut oil or Ghee in both the nostrils (Pratimarsh Nasya) in morning and evening.
2. Oil pulling therapy- Take 1 table spoon sesame or coconut oil in mouth. Do not drink, Swish in the mouth for 2 to 3 minutes and spit it off followed by warm water rinse. This can be done once or twice a day.

IV During dry cough / sore throat

1. Steam inhalation with fresh Pudina (Mint) leaves or Ajwain (Caraway seeds) can be practiced once in a day.
2. Lavang (Clove) powder mixed with natural sugar / honey can be taken 2-3 times a day in case of cough or throat irritation.
3. These measures generally treat normal dry cough and sore throat. However, it is best to consult doctors if these symptoms persist.

1. The above measures can be followed to the extent possible as per an individual's convenience.
2. 2 These measures are recommended by following eminent Vaidyas from across the Country as they may possibly boost an individual's immunity against infections.

1. Padma Shri Vaidya P R Krishnakumar, Coimbatore
2. Padma Bhushan Vaidya Devendra Triguna, Delhi
3. Vaidya P M Varier, Kottakkal
4. Vaidya Jayant Devpujari, Nagpur
5. Vaidya Vinay Velankar, Thane
6. Vaidya B S Prasad, Belgaum
7. Padma Shri Vaidya Gurdeep Singh, Jamnagar
8. Acharya Balkrishna ji, Haridwar
9. Vaidya M S Baghel, Jaipur
10. Vaidya R B Dwivedi, Hardoi UP
11. Vaidya K N Dwivedi, Varanasi
12. Vaidya Rakesh Sharma, Chandigarh
13. Vaidya Abichal Chattopadhyay, Kolkata
14. Vaidya Tanuja Nesari, Delhi
15. Vaidya Sanjeev Sharma, Jaipur
16. Vaidya Anup Thakar, Jamnagar