COVID-19 CPG for Healthcare Workers

Revised edition #23, dated 18 May 2022

This updated CPG has been prepared with the collaboration of the multi-disciplinary team of experts and representatives of the medical teams responsible for management of COVID patients who have jointly reviewed and revised this clinical practice guidelines based on local and international literature review.

The revision of this CPG includes:

1. Change self-quarantine days in high-risk contact to 5 +5 days.
2. Adjusted table for antiviral Treatment for patients in group 3

Updated 18 May 2022 for medical professionals and public health personnel

Guidelines on clinical practice, diagnosis, treatment, and prevention of healthcare-associated infection for COVID-19

Medical record department/ screening points
- Screen patient history
- OPD or ER

Surveillance in hospitals

Fever & ARI clinic

Patients who meet the definition of suspected case of COVID-19:

1. Individual whose signs and symptoms are consistent with clinical or epidemiological criteria (as implemented by Division of Epidemiology, Department of Disease Control) **OR**
2. Patient who is suspected of COVID-19 infection by treating physician

1) Patients must wear masks while waiting at arranged waiting area or wait to hear test results at home and follow the guidelines, if there are indications that patients should be hospitalized. Alternatively, they may also have the options of staying at home like outpatient, Home Isolation, Hotel Isolation, or Community Isolation, or staying at Hospitel, or being admitted for hospitalization based on the patient's symptoms.
2) Perform basic laboratory testing as deemed appropriate. (Designated receiving area is not required. Adhere to standard laboratory practices.)
3) Collect specimens for ATK or RT-PCR testing of SARS-CoV2 following the guidance implemented by Department of Medical Sciences (DMSc).
4) During the outbreaks, there may be a need for using of antigen test kit (ATK) for initial diagnosis. If patient has tested positive by ATK, he/she should be treated as COVID-19 case and be isolated from other COVID-19 cases while waiting for RT-PCR result. RT-PCR testing should be considered for those with severe symptoms to ensure accuracy of diagnosis.

Negative for SARS-CoV-2

1) Consider giving appropriate treatment.
2) Outpatient care can be a treatment option. If the patient is a high-risk contact, consider home-quarantine as per DDC guidelines (as per this current CPG, quarantine period is 5+5 days after contact with a confirmed case; refer to www.ddc.moph.go.th for more details). For low-risk contacts, isolation may not be required, but they must follow disease control measures, i.e. masking, hand hygiene, social distancing and not sharing personal items with others.
3) If symptoms deteriorate, consider admitting patients in hospital for diagnosis and treatment and give appropriate treatment. Use droplet precautions while waiting for final diagnosis.
4) **If symptoms have not improved within 48 hours,** consider sending samples for a repeat test for SARS-CoV2 or determining other causes as appropriate.

Positive for SARS-CoV-2

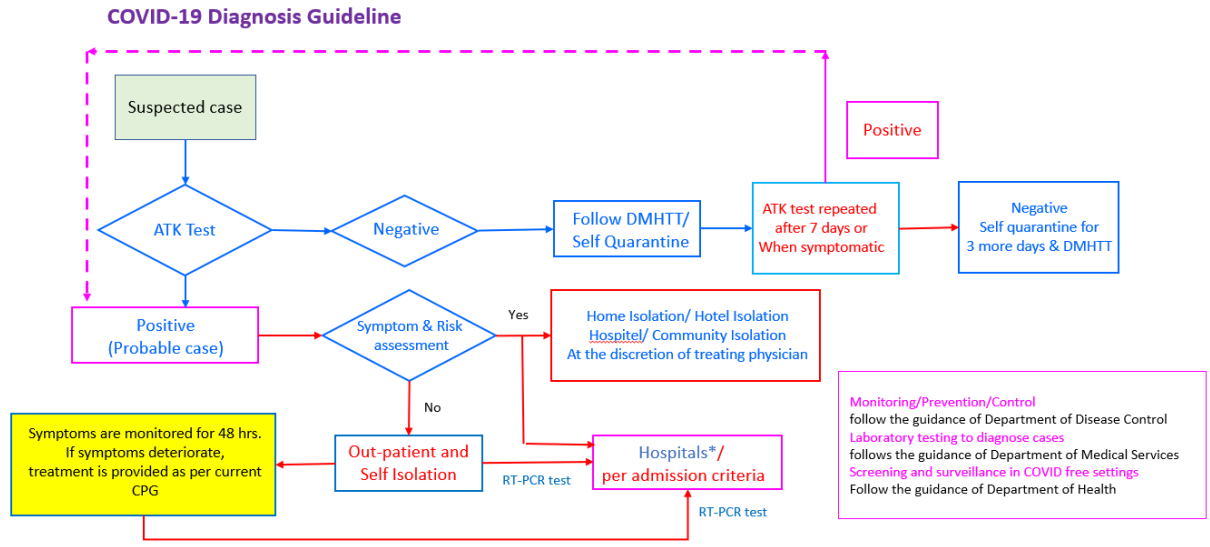
1) Outpatient treatment is provided. Home isolation or isolation at state-designated facilities will be required, taking into account relevant precautions and recommendations
2) In case of severe symptoms or aerosol generating procedure is required, put patients in AIIR.

Definition of suspected case based on disease surveillance and investigation purposes:

Case definition for surveillance (Division of Epidemiology; January 24, 2022)

1. Clinical criteria: Individuals who meet one of the following criteria.
   1.1 Have at least two of the following symptoms including 1) Fever, 2) Cough, 3) Nasal discharge/congestion, 4) Sore throat, 5) Sputum production, OR
   1.2 Have one of the symptoms in (1.1) accompanied by any of the following symptoms including 1) Watery stool, 2) Muscle pain, 3) Headache, 4) Nausea/vomiting, 5) Diarrhea, 6) Fatigue, 7) Rash, OR
   1.3 Have one of the following symptoms including 1) Dyspnea, 2) Difficulty breathing, 3) Altered sense of smell/taste, 4) Disoriented or altered mental status, OR
   1.4 Have one of the following severe respiratory tract infections including 1) Pneumonia/chest radiography indicating pneumonia of unknown causes, or of which causes could not be determined within 48 hours, 2) Acute respiratory distress syndrome (ARDS), OR
   1.5 Individual is suspected of COVID-19 infection by treating physician.
2. Epidemiological criteria
   2.1 Individual who has resided in/arrived from the local and overseas location(s) affected by COVID-19 outbreaks within the past 14 days.
   2.2 Individual who was in close contact with probable/confirmed case of COVID-19 during 14 days of close contact with COVID-19 case
3. Laboratory criteria: Any individuals who meet the diagnosis criteria mentioned above should have specimens collected for the following laboratory examinations:
   Pathogen identification:
   3.1 Test methods include real-time polymerase chain reaction (RT-PCR), or sequencing, or viral culture. Nasopharyngeal swab, nasal swab, throat swab, and saliva may be obtained to test for genetic materials of SARS-CoV-2.
   3.2 Testing may also be performed using Thai FDA-certified, validated antigen test kit (ATK) to identify viral protein or genetic materials. Nasopharyngeal swab, nasal swab, throat swab, and saliva may be obtained to test for genetic materials of SARS-CoV-2.

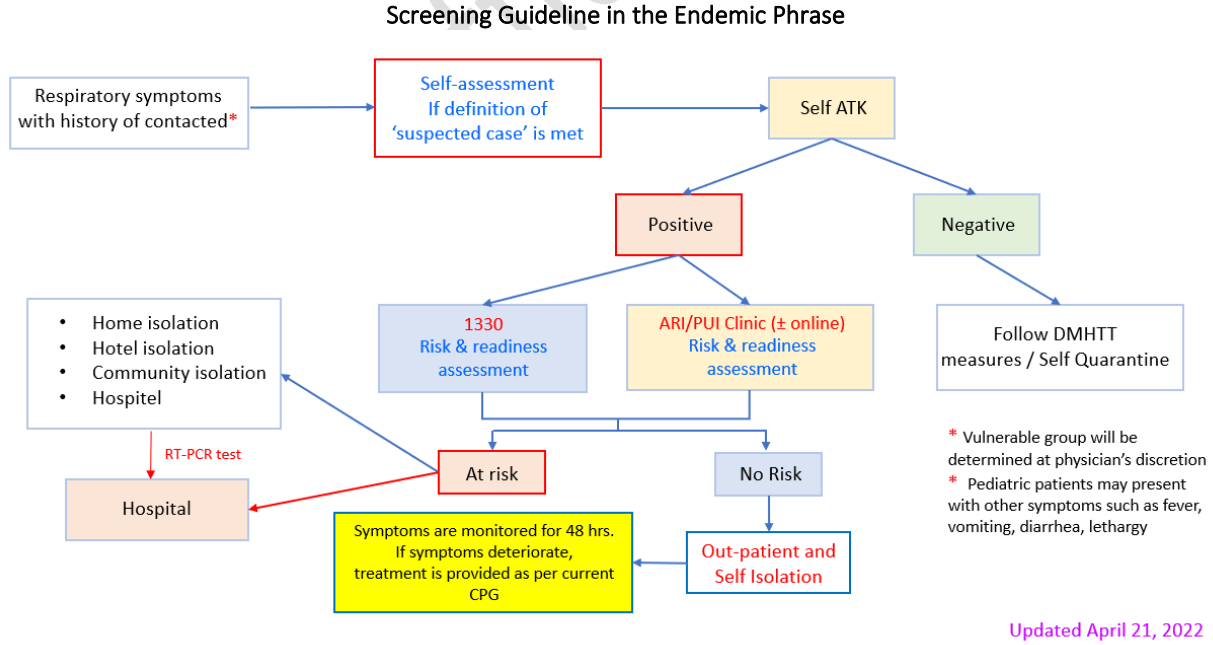
Guidelines for Diagnosis of Suspected Cases of COVID-19 (Department of Medical Services as of April 15, 2022)



Note * RT-PCR test is required if admit to the hospital or community isolation that sharing with others
If RT-PCR could not be done in community isolation, consider

1) Two types of ATK to reduce false negative if need to be in CI (SE 90% in South Korea study) (may do self-test ATK or professional test ATK)
2) To be treated in CI in case of obvious symptomatic and clear contact history

COVID-19 Screening Guideline for Patient Treatment in the Endemic Phrase (DMS as of April 21, 2022)



Treatments for COVID-19

For probable cases, positive ATK for SARS-CoV-2 and confirmed cases (both symptomatic and asymptomatic) are classified into 4 categories based on severity and risk factors as follows:

1. Asymptomatic COVID-19 confirmed case
   - Outpatient care with self-isolation or home isolation or isolation at state-designated facilities.
   - Symptomatic treatment is provided at the discretion of treating physician. Do not administer antiviral medicine such as favipiravir as most patients will fully recover.
   - Administration of Andrographis paniculata (locally known as Far Ta Lai Jone) may be considered depending on physician's discretion.
2. Symptomatic COVID-19 confirmed cases without pneumonia/risk factors for severe illness/significant comorbidities and with normal chest radiography
   - May consider prescribing favipiravir as soon as possible.
   - If infection was detected >5 days post onset of illness and case has no symptoms or has only mild symptoms, antiviral drugs may not be needed because the patient will recover without complication.
3. COVID-19 confirmed case with mild symptoms BUT has risk factors for severe illness or having comorbidities

   Risk factors include any of the following:
   1) Aged >60 years old
   2) Chronic obstructive pulmonary disease (COPD) and other chronic lung diseases
   3) Chronic kidney disease (CKD) (stage 3 and over)
   4) Cardiovascular disease (CVD) and congenital heart disease
   5) Cerebrovascular disease
   6) Uncontrolled diabetes
   7) Obesity (body weight >90 kg or BMI ≥ 30 kg/m2)
   8) Cirrhosis (Child-Pugh class B and over)
   9) Immunocompromised conditions (during chemotherapy or immunosuppressive therapy or on corticosteroid equivalent to prednisolone 15 mg/day for ≥15 days)
   10) HIV patient with CD4 cell count cells/ml

Administration of only one antiviral medication recommended in table 1 within 5 days after the onset of symptoms appear for good result and taking into consideration of the following factors

- the patient's vaccine history and underlying medical condition,
- drug contraindication,
- drug-drug interaction,
- patient bed management, ease of use of medication, and
- the level of available drug supplies.

Table 1. Administration of antiviral medicines in patient with mild symptoms (group 3)

No risk factor	One risk factor	≥ 2 risk factors
Favipiravir	Favipiravir or Remdesivir* or Molnupiravir or Nirmatrelvir/ritonavir	Remdesivir* or Nirmatrelvir/ritonavir or Molnupiravir

Note *Remdesivir for 3 days or Molnupiravir for 5 days or Nirmatrelvir/ritonavir for 5 days
See table 2 for Nirmatrelvir/ritonavir and Molnupiravir precautions

4. Confirmed case with pneumonia and hypoxia (resting O2 saturation ≤94%), severe pneumonia for no more than 10 days after symptom onset and receive oxygen
    a. Recommend remdesivir for 5-10 days depends on clinical symptom, and should be closely monitored
    b. Recommend corticosteroid as in Table 2

Treating COVID-19 in pediatric patients <18 years old

For probable cases, positive ATK for SARS-CoV-2 and confirmed cases both symptomatic and asymptomatic cases should be provided with the following specific treatments and duration of hospitalization similar to adult patients.

1. Asymptomatic COVID-19 case
    - Treatment is provided according to physician's discretion
2. COVID-19 case with mild symptoms, without pneumonia, and no risk factors
    - Recommend giving supportive care and consider prescribing Favipiravir for 5 days.
3. COVID-19 case with mild symptoms but with risk factors or mild pneumonia not fulfilling the criteria of COVID-19 with pneumonia in (4)
   Important risk factors/comorbidities include age <1 year old and other risk factors, e.g. obesity (weight-for-height ratio > +3 SD), chronic respiratory disease including moderate or severe asthma, cardiovascular disease, cerebrovascular disease, chronic kidney failure, cancer, and immunocompromised conditions, diabetes, genetic disorders including Down's syndrome, children with severe neurological impairment, and children with developmental disorder
    - Consider prescribing Favipiravir for 5 days; treatment duration may be longer depending on clinical manifestation and physician's discretion.
4. COVID-19 case with pneumonia breathing faster than the age-related respiratory rate (60 bpm for <2 months of age, 50 bpm for 2-12 months of age, 40 bpm for 1-5 years of age, 30 bpm in >5 years of age) or having other severe conditions, e.g. decreased appetite, dehydration, high-grade fever, seizure, or severe diarrhea
    - Recommend Favipiravir for 5-10 days.
    - Consider administration of Corticosteroid as appropriate and with physician's discretion

Note: For pediatric patients who are asymptomatic or with mild symptoms, outpatient care with self-isolation at home is recommended.

Initial treatment guidelines for COVID-19-associated multisystem inflammatory syndrome in children (MIS-C) are provided in the Royal College of Pediatricians of Thailand (https://www.thaipediatrics.org/pages/Doctor/Detail/46).

Figure 1 Guideline for diagnosis of COVID-19-associated multisystem inflammatory syndrome in children (MIS-C)

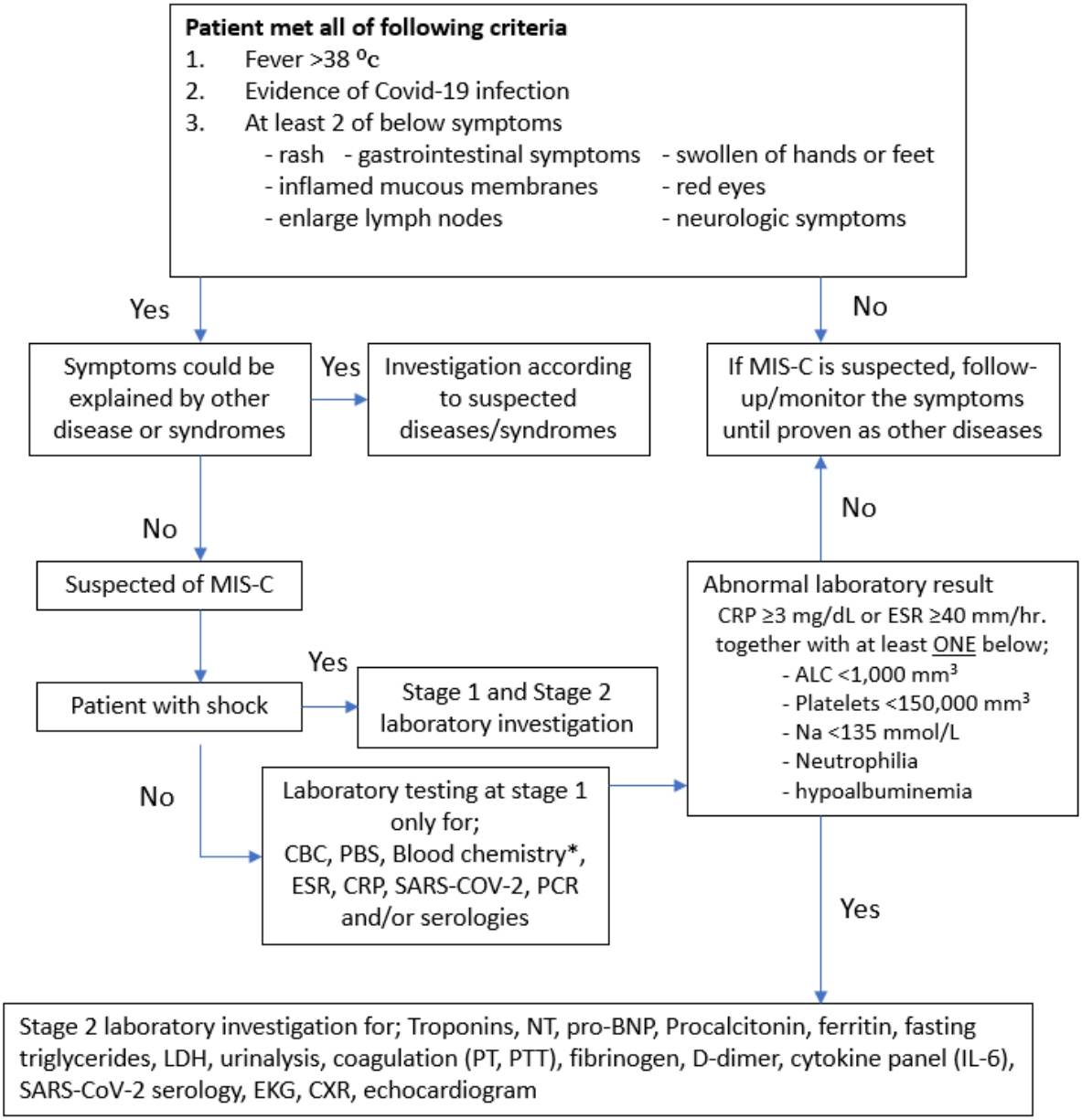
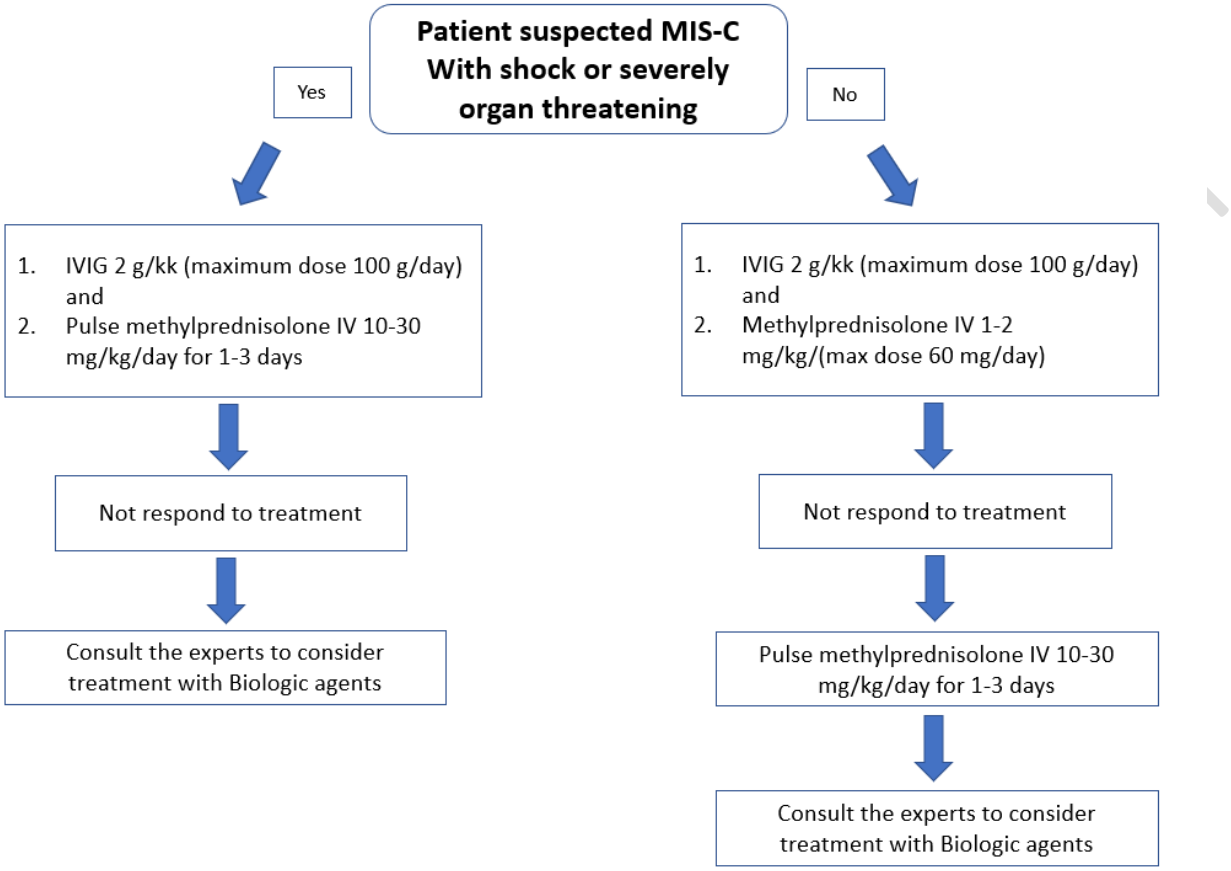


Figure 2 Initial Treatment guideline for patient suspected of COVID-19-associated multisystem inflammatory syndrome in children (MIS-C)



- Consult the expert for all patients
- Prescribe antibiotic as appropriate with patient's clinical symptoms if infectious disease cannot be excluded. If fever and other conditions are determined to be attributable to MIS-C and there is no presence of bacterial infection, antibiotic administration must be discontinued immediately.
- Prescribe low dose aspirin (3-5 mg/kg/day, maximum dose 81 mg/day) in all pediatric patients including those with Kawasaki disease-like condition, except for those with platelet count <80,000/mm^3.
- Maximum IVIG dosage not to exceed 100 grams, methylprednisolone 1-2 mg/kg/day maximum dosage not to exceed 60 mg/day and methylprednisolone 10-30 mg/kg/day, maximum dose not to exceed 1,000 mg/kg/day

Treating COVID-19 in pregnant women:

As pregnant women are at risk of developing severe COVID-19 and their treatment options may also be limited, following treatment of COVID-19 in pregnant women treating physician should consider giving the same antiviral drugs as those administered for non-pregnant individuals, with the exception of the following cases.

1. Use of Favipiravir in pregnant women may have teratogenic effect on embryo and fetus. For women of childbearing potential (WOCBP), pregnancy status should be determined prior to initiation of Favipiravir.
2. Favipiravir is not recommended in pregnant women in their first trimester.
3. Favipiravir may be administered in pregnant women in their second and third trimesters if clinically indicated and treating physician has determined that its benefits outweigh its risks. However, the decision to give this medication must be taken only after consultation with the patient and his/her relatives.
4. To date, there has been limited safety data on administration of Remdesivir in pregnant women. According to its current safety profile, the medication may be used in pregnant women during every trimester. It should be used according to its indication in the same manner as when it is administered to high-risk, non-pregnant individuals. Remdesivir should be administered to pregnant women if clinically indicated and treating physician has determined that its benefits outweigh its risks. However, the decision to give this medication must be taken only after consultation with the patient and his/her relatives.
5. No studies have been conducted on the use of Nirmatrelvia/Ritonavir among pregnant women. Nevertheless, these medications may also be administered to pregnant women if clinically indicated and treating physician has determined that its benefits outweigh its risks. However, the decision to give either of these medications must be taken only after consultation with the patient and his/her relatives.
6. As Molnupiravir has been found to have teratogenic effect on embryo and fetus, it is contraindicated in pregnant women of all trimesters.
7. If pregnant women are more likely to develop severe illness, they should be referred to another health facility with more capacity to provide appropriate treatments as soon as possible, at the discretion of treating physician.

Additional recommendations:

1. Patients with asymptomatic infection/mild symptoms who are not at risk of severe complications and whose residence environments are suitable for home isolation may be given outpatient treatment with self-isolation, home isolation, hotel isolation, hospital stay, or community isolation according to the current Guidelines for COVID-19 Treatment during Transitional Period to Endemic Phase implemented by Department of Medical Services (www.dms.moph.go.th/covid-19).
2. Consider using Andrographis paniculata (locally known as Far Ta Lai Jone) for treatment of COVID-19.
   - Consider using this herbal medicine in patients with asymptomatic infection/mild symptoms and without risk factors for severe COVID-19 infection, no contraindication of using Far Ta Lai Jone. Preliminary studies showed that it may help reduce the chance of progressing to pneumonia. More studies are ongoing.
   - To date, no data has been available on the use of Andrographis paniculata (Far Ta Lai Jone) in combination with other antiviral medicines. Using Andrographis paniculata (Far Ta Lai Jone) to prevent COVID-19 infection is not recommended.
3. Use either oral antiviral drug or remdesivir, not in combination because both drugs work in the same site. after completion of treatment with remdesivir, do not administer favipiravir
4. Retrospective analysis of 744 cases in Thailand showed that important factor in reducing the risk of disease's severity such as the use of high flow oxygenation, endotracheal intubation, admission for ICU care or death is the treatment with favipiravir within 4 days of symptom onset. Systemic review and meta-analysis of studies on the efficacy of Favipiravir indicated that the medication did not contribute to a reduction in mortality rates among patients with moderate to severe COVID-19 infection. Favipiravir may however help reduce the duration of symptoms in those with asymptomatic infection or mild symptoms if the medication is given early enough. To date, no large-scale, double-blind, randomized, controlled studies of the efficacy of Favipiravir have been conducted. Based on currently available data, it is recommended that the medication should be given as soon as possible to prevent the disease from progressing to more severe illness, particularly among patients with comorbidities. As for severe cases

of COVID-19, in the event of no other treatment options, administration of Favipiravir may be considered but it may not be as effective. Result from Thailand multi-institutes, prospective study being conducted in 96 volunteers showed that treatment with favipiravir in patients with mild to moderate symptom start the treatment early at the average of 1.7 days significantly improves the symptoms faster than control group who did not receive the medicine (2 day compared with 13 days, p< 0.001).

5. Exercise-induced hypoxemia is conducted by having the patient do he air cycling (in supine position and cycling like riding the bicycle) for 3 minutes or walking at bedside for >3 minutes then measure SpO2 before and after the activity. if SpO2 drops ≥3% this should be interpreted as positive test.
6. Chloroquine, hydroxychloroquine, and azithromycin are not recommended for treatment of COVID-19.
7. Corticosteroids are not recommended for patients with mild symptoms (requiring no supplemental oxygen) or without pneumonia.
8. Use of other anti-inflammatory agents and IL-6 receptor antagonist
    - May consider using Tocilizumab or JAK inhibitors (e.g. Baricitinib and Tofacitinb) in the event of severe pneumonia and when it is well beyond a therapeutic window of antiviral drugs. The decision must be taken only after consultation with the experts.
9. Antibiotics should be prescribed only if there is indication of concurrent bacterial infection. It should not be prescribed when patient is first admitted due to chance of bacterial coinfection is only 3% and early treatment with antibiotic will subsequently be associated with multidrug-resistant infection.
10. If patient is suspected to have pneumonia due to concurrent bacterial infection, collect sputum for bacterial culture in order to select antibiotics that best matches the causative pathogen. Sputum exam can be done in a biosafety cabinet to prevent generating droplets or aerosol in the process. Laboratory staff must wear full PPE (coverall, N95 respirator, face shield, gloves, shoe cover) as per COVID-19 lab standards.
11. For administration of anticoagulants and other medications, treating physician should follow the guidelines provided by other relevant medical experts.
12. There is no evidence-based data suggesting the clinical benefits of convalescent plasma for treatment of COVID-19. This treatment option is therefore not recommended. However, convalescent plasma may be used for investigational purposes.
13. There is no data indicating that antiretroviral protease inhibitors (e.g. Lopinavir/Ritonavir or Darunavir/Ritonavir) are efficacious in treating COVID-19 infection. Therefore, they are not included in this current CPG.
14. Reports on systemic review and meta-analysis of clinical trials of Ivermectin indicated that the medication had not contributed to a reduction in mortality rates for patients of all severity level. It has been found that the studies confirming potential efficacy of Ivermectin are significantly biased. As a result, to date no countries have included Ivermectin in their COVID-19 clinical practice guidelines. Ivermectin is therefore not recommended at this time, except for investigational purposes. Findings from recent study conducted by Siriraj Hospital demonstrated that Ivermectin is not effective in treating COVID-19 patients.
15. There is evidence from some studies that Fluvoxamine is effective in humans as it helps reduce intravascular inflammation. Fluvoxamine, according to US FDA guidelines, is originally indicated for treatment of obsessive-compulsive disorder and depression. Even though the findings from randomized, controlled trials indicated potential efficacy of this drug, there are limitations due to limited sample size and the outcomes are reported by the patients participating in the trials for assessment by the investigators. Similar results were reported in clinical trials with a larger sample size. To date, there have been no clinical trials indicating antiviral activity of Fluvoxamine and study data demonstrating that the drug could effectively reduce the viral load. Therefore, there is not sufficient evidence for inclusion of Fluvoxamine into this current CPG at this stage. However, a pilot study may be conducted using standard research methodology with close monitoring of patients.
16. Currently there are scientific publications on *in vitro* studies of Cyproheptadine and Niclosamide. However, more randomized, controlled studies in humans will need to be conducted so that findings from these clinical trials could be used to justify the use of these medications for treatment of COVID-19 infection.
17. Treatment regimens recommended in this CPG is based on evidence available to date. Currently there are insufficient randomized controlled trials to endorse any specific therapeutics, except for Nirmatrelvir, Molnupiravir, and Remdesivir. In addition, data on clinical outcomes of these medications is also subject to change depending on additional data that will become available in the future. Given this, the attending physician must stay constantly updated on new publications from relevant clinical trials and stand ready to modify the regimens/ treatments accordingly. The clinical practice guidelines will be revised when more evidence becomes available. In addition, use of any medications other than those listed in this CPG for therapeutic purposes should be conducted within the framework of clinical research that meets academic standards and based only on research ethics.

Table 2. Recommended dosage of COVID-19 medications for adults and children

Drugs/dosage for adults	Dosage for children	Cautions/ common side effects
Andrographis paniculata (Far Ta Lai Jone) **Administration** - Fa Ta Lai Jone capsule or tablet containing either extract or crude drug that specify the andrographolide in mg per capsule or % of drug quantity -Calculated dosage of andrographolide is 180 mg/person/day in 3 times/day before meal for 5 consecutive days (in case of too many capsules per time it may be given 4 times/day) -Start administration as soon as possible after getting infected with SAR-CoV-2	There is not enough data to recommend using Andrographis paniculata in pediatric patients to treat COVID-19. Please consult medical experts if it needs to be given to children.	**Contraindications** - Individuals with known allergy to Andrographis paniculata (Far Ta Lai Jone) - Pregnant or potentially pregnant, breastfeeding women because data suggested that it may cause uterine contraction and have teratogenic effect. **Precautions** - Use in combination with antihypertensive drugs and anticoagulants such as warfarin, aspirin, and clopidogrel due to potential synergistic effect. - No data on dose modification in patients with severe kidney disease or liver disease **Side effects** - Abdominal pain, diarrhea, nausea, heart palpitations, anorexia, dizziness (more likely with higher dose or long-tern use) - May cause urticaria or anaphylaxis (rare) - Other side effects when used in combination with other drugs
Favipiravir (200 mg/tab) **Day 1:** 1,800 mg (9 tablets) twice daily **Following days:** 800 mg (4 tablets) twice daily **If body weight >90 kg** Day 1: 2,400 mg (12 tablets) twice daily Following days: 1,000 mg (5 tablets) twice daily	**Day 1:** 70 mg/kg/day twice daily **Following days:** 30 mg/kg/day twice daily	- Possible teratogenic effects. Carefully administer the drug to pregnant women or women who may be pregnant, and advice must be given to engage the patient in decision making. - Potentially increase uric acid level when used in conjunction with pyrazinamide. - Closely monitor incidence of hypoglycemia when used in combination with repaglinide or pioglitazone. - Tablet can be broken or crushed for administering via NG tube. - No need to adjust the dosage for patients with chronic renal failure (CRF). - Dosage should be modified in patients with moderate to severe liver function impairment, i.e. Day 1: 4 tablets twice daily and the following days: 2 tablets twice daily.
Remdesivir Day 1: 200 mg IV once daily Days 2-5: 100 mg IV once daily **Indication** 1) For patients with pneumonia requiring oxygen therapy, Remdesivir should be given for 5 days and 10 days for severe case 2) Have contraindication for oral administration or problem with absorption. 3) Pregnant woman	**Day 1:** **5 mg/kg IV once daily** **Following days:** **2.5 mg/kg IV once daily**	- Constipation, hypokalemia, anemia, thrombocytopenia, increased total bilirubin, elevated alanine transaminase and aspartate transaminase, hyperglycemia - Remdesivir is Not recommended in patients with eGFR < 30 mL/min or ALT >10 times (be cautious if ALT >5 times) - Drug infusion should take > 30 minutes but should not be longer than 120 minutes to prevent hypersensitivity reaction. - Drug powder should be reconstituted with 20 mL of sterile water for injection then mix the drug in 0.9% NSS. Following reconstitution, drug can stay for 24 hours at 20-25°C and 48 hours at 2-8 °C. - Early treatment, within 7 days when symptom occurs, in those who has high risk for severe symptom for 3 days will reduce disease progression by 87%
Molnupiravir (200 mg/tab) Days 1-5: 4 tabs, twice daily	Currently Molnupiravir is only approved for use in individuals aged ≥18 years who are at risk of severe COVID-19.	- This medication has teratogenic effect. Use in pregnant women of all trimesters is prohibited. - There is no need for dose modification in patients with renal function impairment. - To ensure expected therapeutic effect, Molnupiravir should be given within 5 days of symptom onset.
Nirmatrelvia/Ritonavir (150 mg/tab and 100 mg/tab)	Currently these medications are only approved for use in individuals aged ≥ 18 years who are at	**- Known interaction with various medications. Co-administration with some medications are prohibited.** Treating physician should always verify if there any other drugs that may cause serious drug-drug interaction and doses should be

Days 1-5: Nirmatrelvir 2 tablets + Ritonavir 1 tablet twice daily Dose modification based on renal function: • eGFR ≥30 to <60, Nirmatrelvir 1 tablet + Ritonavir 1 tablet twice daily • eGFR <30, no recommended dose available Patients with liver disease: • Child-Pugh A, B – dose modification not needed. • Not recommended in patients with Child-Pugh C liver disease	risk of severe COVID-19. Recommended doses are the same as those prescribed for adults.	adjusted as per prescribing information of those medications. For example, Nirmatrelvia/Ritonavir should not be administered in combination with ergots, statins, and amiodarones. - **To ensure expected therapeutic effect, Nirmatrelvia/Ritonavir should be given within 5 days** of symptom onset will reduce severe symptom by 89%
Corticosteroids **- Patients with pneumonia and SpO2 ≤94% or SpO2 on exertion decreases ≥3% when compared with baseline value**; or if patients are at an increased risk for rapid progression toward severe illness, administration of corticosteroids may be considered on a case-by-case basis when SpO2 ≤96%; prescribe dexamethasone 6 mg/day for 7-10 days. If body weight >90 kg, consider increasing doses. **- Pneumonia and SpO2 ≤93% or requiring oxygen supplement ≥3 L/min**, consider giving dexamethasone up to 20 mg/day or equivalent. Doses should be gradually tapered off when symptoms improve, with a total treatment duration of 7 days. **- Pneumonia requiring HFNC, NIV or ventilator**, prescribe dexamethasone 20 mg/day at least 5 days then gradually taper off when symptoms improve. if symptoms deteriorate, increase the dosage based on risk-benefit assessment of superimposed infection.	**Consult medical experts**	- Closely monitor hyperglycemia, particularly in diabetes patients. - In case of long-term use - Daily corticosteroid dosage may be adjusted at the physician's discretion, for instance, the use in overweight patient and side effects associated with high dose corticosteroid should always be closely monitored.

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Recommendation for COVID-19 patient referrals

- If a patient is in a condition beyond the healthcare facility's capacity, refer to a hospital with higher capacity.
- The original healthcare facility should coordinate referrals/transfers at an early stage.

By the following criteria:

- SpO_2 on room air ≤94%
- Rapid progressive pneumonia within 48 hrs. of treatment

Table 3. Patient care facilities and hospitals for case referral

COVID -19 patients	Hospital
1) Asymptomatic confirmed case or probable case	Out-patient & Self-Isolation or Home isolation or sate-designated facility
2) Confirmed case with mild symptoms Normal chest x-ray No risk factors/significant comorbidities	Home isolation or sate-designated facility
3) Confirmed case with risk factors/significant comorbidities. may be symptomatic or with mild symptoms or with mild pneumonia	Hospital or state-designated facility
4) Confirmed case with pneumonia SpO_2 on room air <94%	Hospital

Discharging patients from a hospital

When the patient's conditions improve, they will be discharged for home quarantine. However, they will be required to maintain the principles of preventing infection according to the new standards.

1) Asymptomatic confirmed cases will be in home isolation or state-designated facility for at least 10 days from the day the patient tested positive (For provinces that have problems with bed management, patient will be in hospital for 5-7 days and this will be followed by home quarantine to complete 10 days).
2) Mild cases will be in home isolation or in state-designated facility for at least 10 days from symptom onset. When completed, if symptoms persist, continue to be in hospital or a place designated by the state until symptoms have resolved for at least 24-48 hours. (For provinces that have problems with bed management, patient will be in hospital for 5-7 days and this will be followed by home quarantine to complete 10 days from the date of symptom onset).
3) For the patients being discharged early and continue with home quarantine to complete a 10-day quarantine period from the day the patient tested positive (for asymptomatic case) or symptom onset date, during home quarantine the patient must strictly follow the home quarantine guidelines provided on the last page of this document.
4) For severe cases or severe immunocompromised host including patients who are currently on chemotherapy for cancer treatment, bone marrow or organ transplantation within 1 year, untreated HIV case with CD4 count < 200 cell/mm3, patient with combined primary immunodeficiency disorder, patient receives prednisolone >20 mg/day for ≥2 weeks, and those with immunocompromised conditions should be treated in the health facility or state-designated facility and discharged when symptoms have improved. Following discharge from health facility, they must continue with home quarantine to complete at least 20 days of quarantine from the symptom onset date.
5) Patient discharge criteria:
    a) Patients whose symptoms have improved and no progression on chest radiography
    b) Body temperature not exceeding 37.8 °C for the past consecutive 24-48 hrs.
    c) Respiratory rate not exceeding 20 bpm
    d) Resting SpO2 when on room air >96%; some patients may be discharged home with supplemental oxygen equipment
6) No need to repeat testing with RT-PCR, antigen or antibody detection in patients who are already confirmed cases as well as when they're discharged except for research purposes and the researcher must clearly explain to the patient.
7) Following discharge, when patients have completed the mandatory quarantine period, they should follow new normal practices, ie. wearing mask, hand washing, social distancing, avoiding crowded area or poor ventilated area.
    a) Patient may rest at home or return to work as usual since the disease transmission period has passed.

b) Returning to work depends primarily on the health condition of the patient. No need to repeat the testing before returning to work, but strictly follow new normal practices.

c) If any symptoms occur, consider identifying the cause(s) and provide treatment accordingly.

d) Patient who recovered from COVID-19 less than 3 months typically has low risk of getting infection again. Therefore, repeating SARS-CoV-2 testing with RT-PCR, antigen, or antibody testing has low benefits, unless having strong contact history testing may be considered on case-by-case basis.

Remark: In case patient requested medical certificate, attending physician can specify as…. the patient's symptoms have improved and he/she has recovered from COVID-19 based on the patient's symptoms. Sample medical certificate is available for download at:

https://covid19.dms.go.th/backend/Content/Content_File/Covid_Health/Attach/25641026081439AM_COVID%20certificate.pdf

Guidelines for COVID-19 patients

Most COVID-19 patients develop only mild symptoms and may be hospitalized for a short period of time before being discharged to convalesce in a home care setting. Those with mild condition will gradually get better until they have fully recovered. However, around the end of the first week, some patients may exhibit worse symptoms. For patients with mild or improved conditions, the virus that causes Covid-19 can still be detected in their mucus and saliva specimens for up to 3 months. Typically, viral RNA detected following previous infection a long time ago could be fragments of inactive viral RNA remaining from viral shedding. In addition, detecting any viral DNA/virus particles will depend on the quality of the specimens collected. Detection of viral RNA after the incubation period does not necessarily mean that the patient is still contagious.

Therefore, this CPG recommends that a swab sample is not required before discharging a patient from a healthcare facility. Neither it is necessary to perform any tests to confirm the patient is no longer infected before returning home or returning to work since it will not affect treatment plan. The clinician will make a decision based on the patient's clinical symptoms according to the above criteria. The convalescing patient who has passed a transmission period can continue a normal life by following general infection prevention and control precautions until the transmission is under control.

Recommendations for COVID-19 patients who are discharged early to complete a mandatory quarantine period at home

1. Refrain from leaving home to the community in all cases, except for travel to hospital to attend a scheduled visit.
2. A person should have a separate bedroom from others. If there is no separate bedroom, a person must be placed downwind 3-5 meters away from others in a well-ventilated room. If this could not be arranged, a person must be in community isolation until an isolation period is completed.
3. If possible, a person should also use a separate toilet as well. If this is not possible, all frequently touched surfaces must be cleaned with cleaning solution or disinfectant solution such as alcohol after every use.
4. Personal hygiene: Always wear a surgical mask or cloth face covering when staying with others.
5. Wash hands regularly with soap and water, especially after going to the bathroom, or use alcohol-based hand sanitizer.
6. Do not eat with others.
7. Keep a distance of at least 2 meters from others and wearing face mask at all times when meeting with others.
8. Drink plenty of water and eat well-cooked, clean and nutritious food.
9. In case of development of new symptoms or deterioration of existing symptoms, for example, high fever, severe cough, fatigue, chest pain, panting, difficulty breathing, loss of appetite, immediately contact the local healthcare facility. If the patient travels to hospital/healthcare facility, he/she is recommended to wear face mask at all times while on the way to hospital.
10. After completion of quarantine period, persons can continue social activity and work according to new normal practice such as wearing mask when staying with others, hand washing and social distancing.

If there are any inquiries, the patients may contact their local hospital.