PHILIPPINE COVID-19 LIVING CLINICAL PRACTICE GUIDELINES

As of 22 May 2023

Disclaimer

As a living guideline, the recommendations will be updated, and new recommendations will be added as the evidence evolves. The living recommendations are based on the best evidence available in scientific literature at the time of its formulation. However, this living CPG is not a comprehensive guide to all practice questions and management options on COVID-19. This is not meant to restrict the practitioner in using sound clinical judgement and sharing the decision with the patient, and from considering other management options according to the patient's particular needs and preferences. This CPG can serve to inform policy, but it is not meant to serve as a basis for approving or denying financial coverage or insurance claims merely because of nonconformance with recommendations. Neither are the recommendations supposed to be considered as legal rules for dictating certain modes of action to the exclusion of others.

Acknowledgements

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This project was implemented under the Institute of Clinical Epidemiology, National Institutes of Health (NIH), University of the Philippines Manila (UPM). It was completed with the valuable contribution of 190 people representing the different stakeholders

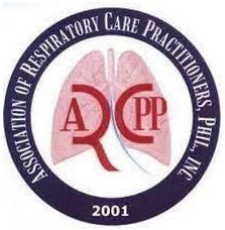
The Philippine COVID-19 Living CPG team dedicates this work to the patients braving their journey with this disease; to all Filipinos who are equally affected physically, emotionally, socially, economically, among others, and to all healthcare professionals contributing to this fight against COVID-19 through patient care and research.

Contact Us

Send us an email at covidcpg.ph@gmail.com for any questions or clarifications on the outputs and process of this Living CPG. You may also suggest a clinical question for the consideration of the Living Clinical Practice Guidelines COVID-19 Taskforce.

Steering Committee

Participating Professional Societies and Institutions



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INTRODUCTION

Given the magnitude of the impact of COVID-19 in the country and the current priority given to it by health care providers, public health officials and the government, the need for clinical practice guidelines to optimize health care through effective management and control of the spread of this disease is imperative. Furthermore, an *infodemic* from the rapid pace of scientific developments on COVID-19 management is running side-by-side with the pandemic. We offer these living recommendations to health care providers to guide their diagnosis and treatment decisions on individual patient care. For policy makers and program managers, these living recommendations can serve to inform policy and provide timely guidance on effective interventions to be prioritized, implemented and made accessible to health care providers and the public.

While there are existing international guidelines and living systematic reviews on COVID-19, there is a need to localize the recommendations from the evidence in our setting by local experts, end-users and other relevant stakeholders. With the rapidly evolving science, the Living clinical practice guideline (CPG) development process is used wherein recommendations are switched to a living status based on the likelihood of new evidence and the importance of the recommendation in health care policy decision making. Living systematic reviews will be maintained to provide up-to-date, evidence-based living recommendations on the treatment, diagnosis, prevention and control of COVID-19.

LIVING CPG DEVELOPMENT METHODS

The development process of the Philippine COVID-19 Living CPG followed the Philippine Department of Health's Manual for Clinical Practice Guideline Development [5] and the Grading of Recommendations, Assessment, Development and Evaluation or GRADE Approach [6]. The reporting of this CPG manuscript was based on the AGREE Reporting Checklist [7]. Some of the questions in the base CPG were updated following the living CPG methodology [8].

Overview of Philippine COVID-19 Living CPG Development Process

The development process of the Philippine Living CPG follows the Philippine Department of Health's (DOH) Manual for Clinical Practice Guideline Development [DOH 2018] and the Grading of Recommendations, Assessment, Development, and Evaluation or GRADE Approach [Schünemann et al 2013].

The specific phases of the CPG development process are as follows:

1. **Guideline Preparation** – The Steering Committee identified and convened members of the Living CPG task force: Lead CPG Developer (Steering Committee), Evidence Review Experts (ERE) or Technical Working Group (TWG) and the Consensus Panel. A total of 24 specialty societies and stakeholders are represented in the task force.

   The Steering Committee, together with the TWG and other key stakeholders, finalized the health questions to be addressed in the CPG. The Steering Committee selected the members of the Consensus Panel based on their knowledge and experience, and potential conflicts of interest in consultation with the heads of the professional medical societies and stakeholder organizations. The Consensus Panel is composed of multi-sectoral representatives such as practitioners, both specialists and non-specialists, and patient advocates. The panel members were selected from the designated representatives of the relevant specialty groups. Some stakeholders, such as nurses, acted as patient advocates to reflect patients' and public's views and preferences.

   Several orientation sessions were conducted for the technical reviewers and consensus panel members on the COVID Living CPG development process. Technical reviewers were re-trained on evidence synthesis and the GRADE methodology. Consensus panel members were oriented on how to interpret the evidence summaries and generate the GRADE evidence-to-decision framework.

2. **Evidence Synthesis** - Evidence Review Experts reviewed and appraised existing CPGs and published literature, prepared evidence summaries, and drafted evidence-based recommendations. They are composed of members with one or more of the following experts: methodologists, clinical epidemiologists, evidence-based practitioners, etc. They ideally have attended previous training on CPG development and evidence synthesis, or have previous experience on CPG development.

   For each health question, a systematic literature search was done. All eligible studies were critically appraised independently by the assigned reviewers. Evidence tables and evidence summaries were generated by the TWG using the GRADE approach. Draft recommendations were formulated based on the certainty of the evidence. All these steps were done by at least two independent reviewers.

   During this stage of development, several technical coordinators with expertise on CPG Development and Evidence-Based Medicine oversee the retrieval and appraisal of evidence and the creation of the draft recommendations. A writer ensured that the draft recommendations are uniform, concise, and clear. The Steering Committee organized several practice sessions for the ERE to finalize their presentations, and discuss them with other EREs, Steering Committee and technical experts. Evidence summaries were collated, formatted, and prepared for presentation to the Consensus Panel.

3. **Evidence to Decision** - Upon completion of the evidence summaries by the ERE, several en banc meetings with the Consensus Panel were conducted wherein the evidence summaries and draft recommendations were presented for discussion and consensus voting. Prior to each meeting, panelists were requested to respond to a survey form to complete the Evidence to Decision framework wherein apart from looking at the benefit and harm of the interventions, factors such as resource implication, feasibility, and acceptability are also considered. The Consensus Panel ranked the outcomes for each set of clinical questions according to whether they were critical, important but not critical or of low importance for decision making. Critical outcomes were primary factors that should influence a recommendation, while those with lower importance did not bear on these recommendations. In a scale of 1-9, those rated 7-9 were critical outcomes, 4-6 were important but not critical outcomes and 1-3 were outcomes of limited importance. Grading of the strength of recommendations are based on the overall certainty of the evidence, trade-offs between benefits and harms, values and preferences of patients, resource implications and impact on equity. A skilled facilitator moderated the discussions during this meeting.

   Each member voted on the draft recommendation as follows: yes, no or

abstain. Consensus was defined as at least 75% agreement among the members for both the direction and strength of recommendation. If consensus was not reached, members discussed the reasons in support of their votes for or against the recommendation. The voting was repeated, up to three rounds, until a consensus is reached. Any issues left unsettled after the en banc meeting were finalized through a modified Delphi activity.

4. **Living CPG Process** – From the standard guideline development process above, several recommendations were prioritized to a *living status* according to the following: priority for decision making, reasonable chance that new evidence changes the existing recommendation, and likelihood of new research evidence [Akl et al, 2020]. Members of the EREs working on living recommendations (1) performed continual surveillance of literature to update the living systematic review with new evidence and (2) updated the Evidence Summary tables and draft recommendations for panel discussion. The Steering Committee reviews the updated evidence summary and determines if the update will be presented to the Consensus Panel again. If so, the Consensus Panel is convened in an online meeting to discuss the new evidence and any changes in the living recommendation.

The Living CPG Development Process is summarized in the figure below:

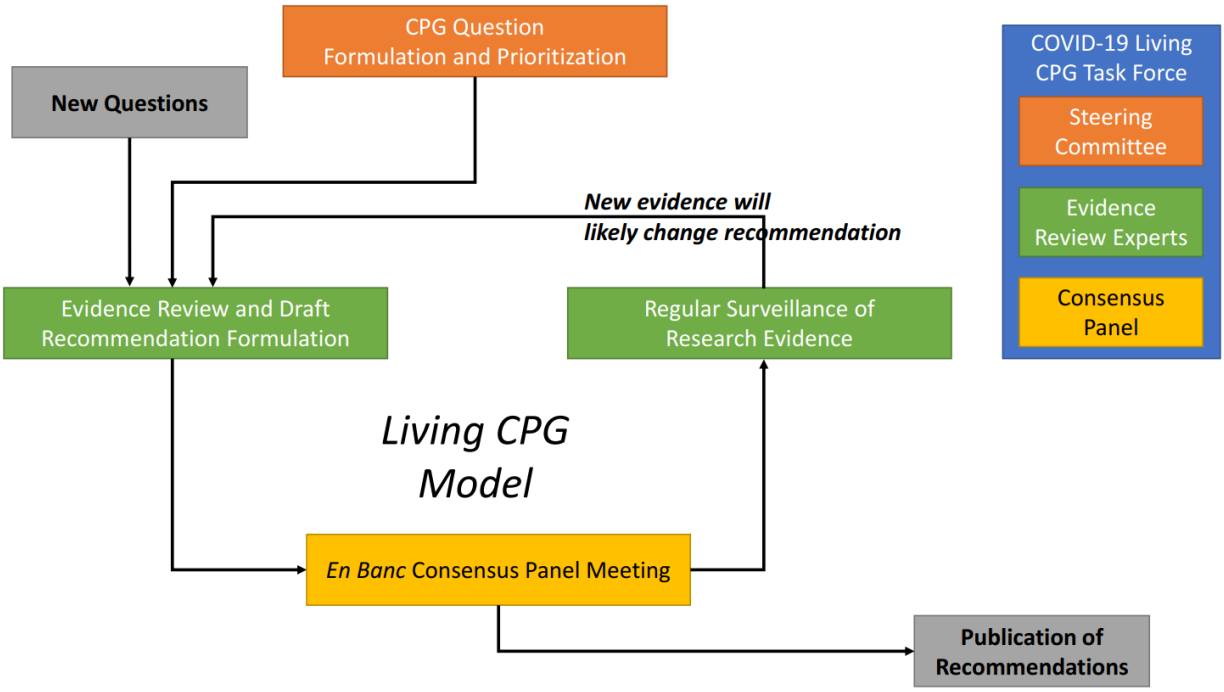

Figure 1. Process adapted by the Philippine COVID-19 Living Clinical Practice Guidelines.

This Living CPG tackles five central themes in COVID-19, and each theme is represented by a separate CPG Consensus Panel:

- Screening and diagnosis
- Treatment
- Critical care and respiratory management
- Non-pharmacologic, adjunct, and infection control interventions
- Vaccines and prophylactic interventions

Management of Conflict of Interest

As outlined in the DOH CPG Manual, all members involved in the creation of this Clinical Practice Guideline, including the Steering Committee, Technical Working Group and Consensus Panel, were screened for possible conflict of interests. All members declared any conflicts of interest within the last four years using a uniform Declaration of Conflict of Interest (DCOI) form. These were reviewed by the Steering Committee and an independent Oversight Committee, to screen and manage the COIs declared. The Oversight Committee is responsible for recommending the extent of participation that can be allowed. The decisions of the Oversight Committee will be reported and published with the Living CPG.

GRADE Methodology

The Consensus Panel evaluated the direction and strength of recommendation using the GRADE approach, based on the (1) over-all certainty of evidence for each question, (2) balance between benefits and harms, (3) values, preferences, and burden on patients, (4) cost and resource use, and (5) other considerations.

The certainty of evidence is one of the bases of the Consensus Panel in making the final recommendation. The following table shows the definition and implication of each:

Table 1. Definitions and Implications of each GRADE Certainty of Evidence

GRADE Certainty of Evidence	Definition	Implication
High	We are very confident that the true effect lies close to that of the estimate of the effect.	Further research is **very unlikely to change confidence** in the estimate of effect
Moderate	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different	Further research is **likely to have an important impact on confidence** in the estimate of effect and may change the estimate
Low	Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.	Further research is **very likely to have an important impact on confidence** in the estimate of effect and is likely to change the estimate
Very Low	We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect	Any estimate of effect is **very uncertain**

The implications of strong and weak recommendations are as follows [Schünemann et al 2013]:

Table 2. Implications of the Strength of Recommendation to Patients, Clinicians, and Policymakers [6].

	Strong Recommendation	Weak Recommendation
Patients	Most individuals in this situation would want the recommended course of action and only a small proportion would not.	Most individuals in this situation would want the suggested course of action, but many would not.
Clinicians	Most individuals should receive the recommended course of action. Adherence to this recommendation according to the guideline could be used as a quality criterion or performance indicator.	Recognize that different choices will be appropriate for different patients. Clinicians must help each patient arrive at a management decision consistent with her or his values and preferences.
Policy makers	The recommendation can be adopted as policy in most situations including for the use as performance indicators.	Policy making will require substantial debates and the involvement of many stakeholders. Policies are also more likely to vary between regions.

Previous recommendations done during Phase 1 of the living CPG that were coined as “conditional” has been rephrased to “weak” recommendations.

There are three reasons where the consensus panels were unable to make a recommendation:

- Confidence in effect estimates is so low that the panels feel a recommendation is too speculative
- Trade-offs are so closely balanced, and the values and preferences and resource implications not known or too variable
- Management options have very different undesirable consequences, and individual patients’ reactions to these consequences are likely to be variable

A strong recommendation is usually stated as “We recommend/ We recommend against…”, while a weak recommendation is worded “We suggest/ We suggest against…”. Finally, when there is no recommendation that can be made, the sentence starts with “There is no/ insufficient evidence to recommend…”

Living Recommendations on Screening and Diagnosis of COVID-19

Should the 14-day symptom-based test be used in screening for COVID-19 infection in apparently healthy adults and children?

As of 22 May 2023

RECOMMENDATION

We recommend the use of a 7-day symptom based* test, instead of 14 days, to assess for possible COVID-19 infection among adults and children.** (*Very low certainty of evidence, Strong recommendation)*

**Symptoms listed in the WHO Case Definition: acute onset of fever and cough (ILI) OR acute onset of ANY THREE or MORE of the following signs or symptoms: fever, cough, general weakness/fatigue, headache, myalgia, sore throat, coryza, dypsnea, nausea/diarrhea, anorexia*

***Please refer to previous recommendations on testing using RT-PCR and Rapid Antigen Tests*

Should pulse oximetry be used for at-home monitoring of COVID-19 patients?

As of 22 November 2021

RECOMMENDATION

We suggest pulse oximetry with close clinical monitoring by qualified medical personnel in suspected and confirmed COVID-19 patients especially those who are at high risk for deterioration. *(Very low certainty of evidence; Weak recommendation)*

Which clinical specimens can be used as an alternative to nasopharyngeal swab RT-PCR* for the diagnosis of COVID-19?

As of 20 February 2021

RECOMMENDATION

We recommend the use of the following specimens as alternative specimens to nasopharyngeal swab RT-PCR for the diagnosis of COVID-19 among symptomatic and asymptomatic patients suspected of COVID-19 in hospital and outpatient settings:

- Oropharyngeal swab *(Moderate certainty of evidence; Strong recommendation)*
- Saliva drool/spit and oral saliva *(Moderate certainty of evidence; Strong recommendation)*
- Nasal swab/wash *(Moderate certainty of evidence; Strong recommendation)*
- Throat swab *(Low certainty of evidence; Strong recommendation)*

We suggest the use of saliva swab and posterior oropharyngeal saliva specimens as an alternative specimen to nasopharyngeal swab RT-PCR for the diagnosis of COVID-19 among symptomatic and asymptomatic patients with suspected COVID-19 in hospital and community/outpatient settings. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We recommend against the use of sputum as an alternative specimen to nasopharyngeal swab RT-PCR for the diagnosis of COVID-19. *(Very low certainty of evidence; Strong recommendation)*

RECOMMENDATION

There is no evidence to recommend the use of bronchoalveolar lavage as an alternative specimen to nasopharyngeal swab RT-PCR for the diagnosis of COVID-19.

*SARS COV-2 RT-PCR of nasopharyngeal swabs remains the diagnostic test of choice to confirm the diagnosis of COVID-19 among suspected individuals.

Among patients suspected to have COVID-19, should rapid antigen tests be used for diagnosis of COVID-19?

As of 02 May 2023

RECOMMENDATION

We suggest the use of Among adults and children suspected to have COVID-19 who are **symptomatic,** we suggest the use of RAT for the diagnosis of COVID-19 as an alternative to RT-PCR. (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

Among adults and children exposed to COVID-19 who are **asymptomatic**, we suggest against the use of RAT for the diagnosis of COVID-19. (*Very low certainty of evidence, Weak recommendation)*

As of 22 November 2021

RECOMMENDATION

We suggest against the use of rapid antigen test for screening purposes. *(Low certainty of evidence; Weak recommendation)*

We suggest against the use of saliva as specimen for rapid antigen test in patients suspected of COVID-19 infection. *(Low certainty of evidence; Weak recommendation)*

We suggest against the use of rapid antigen tests alone in asymptomatic patients suspected of COVID-19 infection. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We suggest the use of rapid antigen tests for the diagnosis of individuals suspected of COVID-19 during the setting of an outbreak provided that all the following conditions are met: *(Very low certainty of evidence; Weak recommendation)*

a. Individuals are in the early phase of illness (less than or equal to 7 days from onset of symptoms); AND
b. Testing kits demonstrated sensitivity of more than or equal to 80% AND have very high specificity of more than or equal to 97%.

RECOMMENDATION

There is insufficient evidence to recommend for or against the use of repeat antigen testing for screening or diagnosis of COVID-19. *(Very low certainty of evidence)*

A negative rapid antigen test should be confirmed with an RT-PCR in settings or situations wherein COVID-19 is highly suspected (e.g., symptomatic or asymptomatic close contacts of probable or confirmed COVID-19 individuals).

Among patients suspected to have COVID-19, how accurate are self-administered rapid antigen tests alone compared to RT-PCR for the diagnosis of COVID-19?

As of 01 February 2023

RECOMMENDATION

We recommend the use of self-administered rapid antigen test for the diagnosis of SARS-Cov-2 in symptomatic individuals provided that ALL OF THE FOLLOWING conditions are met:

1. Ease of collecting samples is ensured;
2. Ease of interpretation is ensured;
3. Test kits have passed flex studies (Studies that challenge the robustness of a diagnostic kit under various conditions of stress); AND
4. Individuals present with symptoms for less than 7 days

(*Moderate certainty of evidence, Strong recommendation)*

RECOMMENDATION

We recommend against the use of self-administered rapid antigen test for the diagnosis of SARS-CoV-2 in asymptomatic individuals. (*Moderate certainty of evidence, Strong recommendation)*

Should breath tests be used to diagnose COVID-19 infection?

As of 02 March 2023

RECOMMENDATION

There is insufficient evidence to recommend the use of breath test in detecting COVID-19 (*Low certainty of evidence)*

Should pooled testing using RT-PCR for SARS-CoV-2, versus individual testing using RT-PCR, be used for screening and surveillance for SARS-CoV-2 in patients with suspected COVID-19 infection?

As of 6 March 2021

RECOMMENDATION

We suggest the use of pooled RT-PCR testing in targeted* low-risk and low-prevalence populations using a pool size of 5 in individuals suspected of COVID-19 infection. *(Moderate certainty of evidence; Weak recommendation)*

**For targeted populations refer to the list of Philippine Society of Pathologists and Department of Health*

Should repeat RT-PCR testing after an initial negative RT-PCR (versus single RT-PCR testing) be done to diagnose COVID-19 in symptomatic patients?

As of 6 March 2021

RECOMMENDATION

We suggest repeating RT-PCR testing when the initial RT-PCR test is negative in symptomatic patients with high index of suspicion for COVID-19 infection. *(Low certainty of evidence; Weak recommendation)*

Among COVID-19 confirmed patients, should certain RT-PCR cycle threshold values be used to determine infectivity?

As of 15 December 2021

RECOMMENDATION

There is insufficient evidence to recommend an RT-PCR cycle threshold cut-off value to determine infectivity among COVID-19 confirmed patients. Interpretation of RT-PCR cycle threshold values may vary and is dependent on the PCR assay used, gene target, sample type, and timing of sample collection. *(Very low certainty of evidence)*

**Interpretation of RT-PCR cycle threshold values may vary and is dependent on the PCR assay used, gene target, sample type, and timing of sample collection.*

Should antibody tests be used for COVID-19 seroprevalence studies and monitoring vaccine response among adults?

As of 22 November 2021

RECOMMENDATION

We suggest using antibody tests that accurately measure IgG or total antibodies to determine COVID-19 seroprevalence among adults when needed for public health purposes. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We suggest against using antibody tests detecting IgM to determine COVID-19 seroprevalence among adults when needed for public health purposes. *(Very low certainty of evidence; Weak recommendation)*

We suggest against using lateral flow immunoassay (LFIA) tests to determine COVID-19 seroprevalence among adults when needed for public health purposes. *(Very low certainty of evidence; Weak recommendation)*

We recommend against routine measurement of SARS-CoV-2 antibody titers after vaccination. *(No evidence; Strong recommendation)*

Among symptomatic individuals previously diagnosed with COVID-19, should antibody testing be done to diagnose presumptive COVID-19 reinfection?

As of 09 April 2021

RECOMMENDATION

We recommend against the use of SARS-CoV-2 Ab testing to diagnose presumptive COVID-19 reinfection among symptomatic patients previously diagnosed with COVID-19* *(Very low certainty of evidence; Strong recommendation).*

**NAAT (RT-PCR) and Genomic sequencing are the recommended diagnostic tests to confirm COVID-19 reinfection.*

Should antibody tests be used to diagnose COVID-19 among vaccinated adults and children?

As of 02 May 2023

RECOMMENDATION

There is no evidence to recommend for or against antibody testing to diagnose COVID-19 disease among vaccinated patients.

RECOMMENDATION

We suggest against the routine measurement of SARS-CoV-2 antibody titers after vaccination. In the rare situations where we need to determine prior COVID-19 disease or infection, with infectious disease specialist consultation, we suggest the use of nucleocapsid antibody testing among vaccinated individuals. (*Very low certainty of evidence, Weak recommendation)*

Among asymptomatic individuals scheduled for non-urgent, non-emergency surgery, should RT-PCR and clinical risk assessment vs clinical risk assessment alone be done to screen for COVID-19?

As of 16 March 2023

RECOMMENDATION

Among **asymptomatic** individuals scheduled for non-emergency/non-urgent surgery, we suggest using clinical risk assessment AND SARS-CoV-2 RT-PCR to screen for COVID-19.

> If RT-PCR is positive, we suggest doing a valid SARS-CoV-2 Rapid Antigen Test to help determine the infectiousness of the patient especially among those with suspected exposure to COVID-19 in the last 14 days.

(*Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

Among **asymptomatic** individuals scheduled for non-emergency/non-urgent surgery who have been diagnosed to have COVID-19 within the last 90 days, we suggest against the use of SARS-CoV-2 RT-PCR.
(*Very low certainty of evidence; Weak recommendation)*

What criteria should be used for allowing individuals who were previously infected with COVID-19 to end isolation?

As of 16 March 2023

RECOMMENDATION

For **asymptomatic, not severely immunocompromised** and **fully vaccinated adults,** we suggest the use of the criterion for ending isolation *(Low certainty of evidence, Weak recommendation)*:

- At least 5 days from the day of the first valid positive COVID-19 test*

For **asymptomatic, not severely immunocompromised** and ***not fully* vaccinated adults,** we **suggest** the use of the criterion for ending isolation *(Low certainty of evidence, Weak recommendation)* :

- At least 7 days from the day of the first valid positive COVID-19 test*

For **symptomatic, not severely immunocompromised** adults, with **mild to moderate COVID-19** diagnosis and **any vaccination status**, we **suggest** the use of the following symptom-based criteria for ending isolation *(Low certainty of evidence, Weak recommendation)*:

- At least 10 days have passed since the onset of symptoms, **AND**
- No fever during the previous 72 hours without the use of antipyretic medications **AND**
- There has been substantial improvement in respiratory or other symptoms of the acute illness, as applicable.

For **symptomatic, not severely immunocompromised** adults with **severe-to-critical** COVID-19 diagnosis and **any vaccination status**, we **suggest** the use of the following symptom-based criteria for ending isolation *(Low certainty of evidence, Weak recommendation)*:

- At least 20 days have passed since onset of symptoms, **AND**
- No fever during the previous 72 hours without the use of antipyretic medications **AND**
- There has been substantial improvement in respiratory symptoms of the acute illness.

For **symptomatic, severely immunocompromised** adults with **any vaccination status**, with **severe to critical** COVID-19 diagnosis, we **suggest** that the following symptom-based criteria should be satisfied for ending isolation *(Low certainty of evidence, Weak recommendation)*:

- Minimum of 20 days have passed since the onset of symptoms, **AND**
- No fever during the previous 72hours without the use of antipyretic medications **AND**
- There has been substantial improvement in respiratory symptoms of the acute illness **AND**
- With multi-disciplinary consultation among relevant subspecialists

**Laboratory-confirmed RT-PCR and/or rapid antigen tests*
*** Day 0 is the day the first test with positive result was taken*

For **symptomatic, severely immunocompromised** adults with **B cell suppression** of any vaccination status, we **suggest** the use of the following test-based strategy using RT PCR for ending isolation *(Very Low certainty of evidence; Weak recommendation)*

- At least 21 days have passed since the onset of symptoms, **AND**
- No fever during the previous 72 hours without the use of antipyretic medications **AND**
- There has been substantial improvement in respiratory symptoms of the acute illness **AND**
- Consult with an Infectious Disease Specialist **AND**
- PCR test results are negative on at least 1 respiratory specimen

Among individuals suspected of COVID-19, how accurate are thoracic imaging modalities compared to RT-PCR alone in diagnosing COVID-19?

As of 13 December 2021

RECOMMENDATION

We suggest against the use of chest x-ray to diagnose COVID-19 infection among asymptomatic individuals. *(Very low certainty of evidence; Weak recommendation)*

We suggest against the use of lung ultrasound alone in diagnosing patients with suspected COVID-19 infection. *(Very low certainty of evidence; Weak recommendation)*

We suggest against the routine use of CT scan for diagnosing COVID-19 among suspected patients with COVID-19 presenting at the emergency department if RT-PCR testing is readily available with timely results. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We suggest chest x-ray to facilitate rapid triage, infection control, and clinical management among any of the following: *(Very low certainty of evidence; Weak recommendation)*

a. Patients with mild features of COVID-19 at risk for progression
b. Patients with moderate to severe features of COVID 19
c. Patients with symptoms of at least 5 days duration

If RT-PCR is not available, we suggest using non-contrast chest CT scan for symptomatic patients suspected of having COVID-19 to guide early triage and management under the following conditions: *(Very low certainty of evidence; Weak recommendation)*

a. Mild COVID-19 patients who are at risk for progression
b. Moderate to severe COVID-19 patients

Among adult patients diagnosed with COVID-19, should prognostic models be used to predict the likelihood of severe disease and mortality?

As of 17 December 2021

RECOMMENDATION

To guide the decision to admit adult patients with COVID-19 to the hospital:
We suggest the use of age, BUN, number of comorbidities, CRP, SpO2/FiO2 ratio, platelet count, Heart rate (ABC2-SPH) risk score, Confusion Urea Respiration Blood Pressure (CURB-65) severity score, Risk Stratification in the Emergency Department in Acutely Ill Older Patients (RISE-UP) score, and Rapid Emergency Medicine Score (REMS). *(Low certainty of evidence; Weak recommendation)*

To guide in the expectant monitoring of hospitalized adult patients, we suggest the use of the 4C Deterioration model. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

To guide the decision to admit adult patients with COVID-19 to the hospital, there is insufficient evidence to recommend the use of 4C Mortality Score, COVID Outcome Prediction in the Emergency Department (COPE) model, and Quick Sepsis-related Organ Failure Assessment (qSOFA) score. *(Very low certainty of evidence)*

To guide in the expectant monitoring of hospitalized adult patients, there is insufficient evidence to recommend the use of Modified Early Warning Score (MEWS) and National Early Warning Score 2 (NEWS2), Clinical Frailty Scale (CFS), and the COVID-GRAM model. *(Very low certainty of evidence)*

Should LDH, CRP, and Ferritin be used to guide immunotherapy in patients with COVID-19?

As of 13 December 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of specific cut-off values of CRP, LDH and Ferritin to guide the initiation of immunotherapy in patients with COVID-19 *(Very low certainty of evidence)*

Should D-dimer be used to guide anticoagulation among adult patients with COVID-19?

As of 26 May 2021

RECOMMENDATION

We suggest the use of D-dimer to guide anticoagulation of adult patients with COVID-19, because of its significant association with mortality, thromboembolism, and worsening of disease *(Low certainty of evidence; Weak recommendation)*

Should procalcitonin be used to guide the initiation of antibiotic therapy in patients diagnosed with COVID-19?

As of 13 December 2021

RECOMMENDATION

For initiating antibiotic therapy, we suggest against the use of procalcitonin alone as a basis for initiating antibiotic therapy among COVID-19 confirmed patients. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

For discontinuing antibiotic therapy:
If available, we recommend using a procalcitonin level of less than or equal to 0.25 ng/mL for discontinuing antibiotic therapy among COVID-19 confirmed patients. *(Very low certainty of evidence; Strong recommendation)*

Should certain risk factors be used to predict the development of long COVID?

As of 29 November 2021

RECOMMENDATION

There is insufficient evidence in using symptoms*, biologic factors or severity of acute COVID-19 in predicting the development of long covid symptoms. *(Very low certainty of evidence)*

**The most common symptoms of long COVID identified were fatigue, dyspnea, sleep disturbance, anxiety or depression, and memory impairment.*

Should heparin induced thrombocytopenia (HIT) test kits be used for COVID-19 vaccine induced thrombosis with thrombocytopenia (VITT)?

As of 29 November 2021

RECOMMENDATION

We suggest against the use of PF4 antibody ELISA Heparin Induced Thrombocytopenia (HIT) test kits and non-ELISA rapid HIT test kits for COVID-19 Vaccine Induced Thrombosis and Thrombocytopenia (VITT). *(Very low certainty of evidence; Weak recommendation)*

Should serum tryptase be used to test individuals who had anaphylaxis after receiving COVID-19 vaccine?

As of 29 November 2021

RECOMMENDATION

We suggest against using serum tryptase for patients who had anaphylaxis after receiving COVID-19 vaccine. *(Very low certainty of evidence; Weak recommendation)*

Evidence and Recommendations for the Treatment of COVID-19

Should hydroxychloroquine/ chloroquine, with or without azithromycin be used in the treatment of patients with COVID-19 infection?

As of 19 February 2021

RECOMMENDATION

We recommend against the use of hydroxychloroquine/chloroquine, with or without azithromycin among patients with COVID-19 infection. *(Moderate certainty of evidence, Strong recommendation)*

Should azithromycin be used in the treatment of patients with COVID-19 infection?

As of 1 December 2021

RECOMMENDATION

We recommend against the use of azithromycin among patients with COVID-19 infection. *(Moderate certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should favipiravir be used for treatment?

As of 03 April 2023

RECOMMENDATION

We recommend against the use of favipiravir among patients with COVID-19 (*Moderate certainty of evidence, Strong recommendation)*

Should remdesivir be used in the treatment of patients with COVID-19 infection?

As of 05 December 2022

RECOMMENDATION

We suggest the use of remdesivir among hospitalized adult patients with mild to moderate COVID-19 infection with at least 1 risk factor* for progression to severe disease. *(Low quality of evidence; Weak recommendation)*

We recommend the use of remdesivir among non-hospitalized adult patients with mild to moderate COVID-19 infection with at least 1 risk factor* for progression to severe disease. *(Moderate quality of evidence; Strong recommendation)*

We suggest the use of remdesivir in children (hospitalized or ambulatory) with mild to moderate COVID-19 infection with at least 1 risk factor for disease progression. *(Very low quality of evidence, Weak recommendation)*

We suggest the addition of remdesivir to dexamethasone in adult patients with COVID-19 infection requiring oxygen supplementation but do not require mechanical ventilation**. *(Low quality of evidence; Weak recommendation)*

We suggest the addition of remdesivir to dexamethasone in children with COVID-19 infection requiring oxygen supplementation but do not require mechanical ventilation. (Very low quality of evidence, Weak recommendation)

**60 years old or older, hypertension, cardiovascular or cerebrovascular disease, diabetes mellitus, obesity (a body-mass index [BMI; the weight in kilograms divided by the square of the height in meters] of ≥30), immune compromise, chronic mild or moderate kidney disease, chronic liver disease, chronic lung disease, current cancer, or sickle cell disease*

***For patients who progress to invasive mechanical ventilation while on remdesivir, the drug can be continued.*

RECOMMENDATION

We suggest against the use of remdesivir among adult patients with COVID-19 infection who are already on non-invasive or invasive mechanical ventilation. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We suggest against the use of remdesivir among children with COVID-19 infection who are already on non-invasive or invasive mechanical ventilation. *(Very low certainty of evidence; Weak recommendation)*

Among patients with COVID-19, should molnupiravir be used for treatment?

As of 25 January 2023

RECOMMENDATION

We suggest the use of molnupiravir within 5 days of symptom onset in adult patients with COVID-19 infection who are non-oxygen requiring and with at least one risk factor* for progression. *(Very low certainty of evidence, Weak recommendation)*

**Risk factors for progression include: age >60 years, active cancer, chronic kidney disease, chronic obstructive pulmonary disease, obesity, serious heart conditions or diabetes mellitus*

RECOMMENDATION

We suggest against the use of molnupiravir for the treatment of children with COVID-19. (*Very low certainty of evidence; Weak recommendation)*

Should baloxavir be used in the treatment of patients with COVID-19 infection?

As of 20 May 2021

RECOMMENDATION

We suggest against the use of baloxavir as treatment for patients with COVID-19 infection. (Very low certainty of evidence, Weak recommendation)

Among patients with COVID-19, should nirmatrelvir + ritonavir (Paxlovid) be used for treatment?

As of 05 December 2022

RECOMMENDATION

We recommend the use of nirmatrelvir + ritonavir among unvaccinated, non-hospitalized symptomatic adult patients with high risk* for progression to severe disease within 5 days from symptom onset. *(Moderate certainty of evidence, Strong recommendation)*

** Risk factors include any of the following: ≥60 years of age; BMI >25 kg/m2; cigarette smoking; immunosuppressive disease (including HIV infection with CD4 cell count <200mm3 and viral load <400 copies/mL) or prolonged iatrogenic immunosuppression; chronic lung, cardiovascular, kidney, or sickle cell disease; hypertension; diabetes; cancer; neurodevelopmental disorders or other medically complex conditions; or medical-related technological dependence*

RECOMMENDATION

We suggest the use of nirmatrelvir + ritonavir among unvaccinated, non-hospitalized symptomatic pediatric patients 12 years of age and older weighing at least 40kg with high risk for progression to severe disease. *(Low certainty of evidence, Weak recommendation)*

Should oseltamivir be used for the treatment of COVID-19?

As of 22 May 2021

RECOMMENDATION

We recommend against the use of oseltamivir as treatment for patients with COVID-19 infection. *(Very low certainty of evidence, Strong recommendation)*

Should lopinavir/ritonavir be used in the treatment of COVID-19?

As of 07 April 2021

RECOMMENDATION

We recommend against the use of lopinavir/ritonavir as treatment for COVID-19 infection. *(Moderate certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should tocilizumab be used for treatment?

As of 28 October 2021

RECOMMENDATION

We recommend the addition of tocilizumab to systemic steroids in patients showing rapid respiratory deterioration and/or requiring high doses of oxygen (high-flow nasal cannula, noninvasive or invasive mechanical ventilation) and with elevated biomarkers of inflammation (CRP). *(Moderate certainty of evidence, Strong recommendation)*

RECOMMENDATION

We recommend against the use of tocilizumab among patients with COVID-19 infection who do not require oxygen. *(Very low certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should baricitinib be used for treatment?

As of 25 January 2023

RECOMMENDATION

We recommend the use of baricitinib in addition to corticosteroids among critical COVID-19 patients on high-flow nasal cannula oxygenation, non-invasive ventilation, or invasive mechanical ventilation. (*Moderate certainty of evidence, Strong recommendation)*

RECOMMENDATION

We suggest against the use of baricitinib for the treatment of children with COVID-19. *(Very low certainty of evidence, Weak recommendation)*

Among patients with COVID-19, should imatinib be used for treatment?

As of 8 November 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of imatinib among patients with COVID-19 infection. *(Low certainty of evidence)*

Among patients with COVID-19, should tofacitinib be used for treatment?

As of 16 January 2023

RECOMMENDATION

We suggest against the use of tofacitinib among hospitalized COVID-19 patients. *(Low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We suggest against the use of tofacitinib for the treatment of children with COVID-19. (*Very low certainty of evidence; Weak recommendation)*

Among patients with COVID-19, should leronlimab be used for treatment?

As of 28 October 2021

RECOMMENDATION

We suggest against the use of leronlimab as treatment for COVID-19. *(Very low certainty of evidence, Weak recommendation)*

Among patients with COVID-19, should infliximab be used for treatment?

As of 12 October 2021

RECOMMENDATION

We suggest against the use of infliximab among patients with COVID-19 infection *(Very low certainty of evidence, Weak recommendation)*

Among patients with COVID-19, should bevacizumab be used for treatment?

As of 12 October 2021

RECOMMENDATION

We suggest against the use of bevacizumab as treatment for COVID-19. *(Very low certainty of evidence, Weak recommendation)*

Among patients with COVID-19, should ivermectin be used for treatment?

As of 16 January 2023

RECOMMENDATION

We recommend against the use of ivermectin for the treatment of children and adults with COVID-19 regardless of disease severity. *(Very low certainty of evidence; Strong recommendation)*

Among patients with COVID-19, should artesunate (artemisinin) be used for treatment?

As of 18 November 2021

RECOMMENDATION

We suggest against the use of artesunate, artemisinin or pyronaridine tetraphosphate + artesunate in the treatment of COVID-19. *(Very low certainty of evidence, Weak recommendation)*

Among patients with COVID-19, should colchicine be used for treatment?

As of 15 March 2023

RECOMMENDATION

We recommend against the use of colchicine in the treatment of COVID-19 patients. (*Very low certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should interferon be used for treatment?

As of 6 December 2021

RECOMMENDATION

We recommend against the use of interferon in the treatment of COVID-19 patients. *(Very low certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should fluvoxamine be used for treatment?

As of 8 November 2021

RECOMMENDATION

We suggest against the use of fluvoxamine among adult patients with mild to moderate COVID-19 infection *(Very low certainty of evidence, weak recommendation)*

RECOMMENDATION

We suggest the against the use of fluvoxamine among children and adolescent patients with mild to moderate COVID-19 infection *(Very low certainty of evidence, weak recommendation)*

Among patients with COVID-19, should bamlanivimab-etesevimab be used for treatment?

As of 16 January 2023

RECOMMENDATION

We suggest against the use of bamlanivimab - etesevimab for the treatment of children and adult patients with COVID-19. (Low certainty of evidence; Weak recommendation)

Among patients with COVID-19, should casirivimab-imdevimab be used for treatment?

As of 15 March 2023

RECOMMENDATION

We suggest the use of casirivimab-imdevimab as an alternative to antivirals among symptomatic, non-hospitalized COVID-19 adult patients with risk factor/s for severe disease only when the predominant circulating variant is not Omicron SARS-CoV-2. *(Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We recommend against the use of casirivimab-imdevimab as treatment for hospitalized COVID-19 patients. *(Very low certainty of evidence, Strong recommendation)*

RECOMMENDATION

We recommend against the use of casirivimab-imdevimab as treatment for asymptomatic, non-hospitalized COVID-19 patients. (*Very low certainty of evidence, Strong recommendation)*

RECOMMENDATION

We recommend against the use of casirivimab-imdevimab in children with COVID-19. *(Very low certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should regdanvimab be used for treatment?

As of 20 December 2021

RECOMMENDATION

We suggest against the use of regdanvimab for the treatment of mild to moderate COVID-19. *(Very low certainty of evidence, Weak recommendation)*

Among patients with COVID-19, should tixagevimab-cilgavimab be used for treatment?

As of 12 December 2022

RECOMMENDATION

We suggest the use of tixagevimab-cilgavimab as treatment for unvaccinated non-hospitalized adult patients with mild to moderate COVID-19 with at least 1 risk factor* for progression to severe disease**.** *(Low quality of evidence; Weak recommendation)*

**Risk factors for severe COVID-19: age ≥65 years, body-mass index ≥35 kg/m^2, cardiovascular disease (including hypertension), chronic lung disease (including asthma), chronic metabolic disease (including diabetes), chronic kidney disease (including receipt of dialysis), chronic liver disease, and immunocompromised conditions*

RECOMMENDATION

We suggest the use of tixagevimab-cilgavimab as treatment for unvaccinated hospitalized adult patient with COVID-19 in addition to standard of care. *(Low quality of evidence; Weak recommendation)*

RECOMMENDATION

We suggest against the use of tixagevimab-cilgavimab in children and adolescents. *(Low quality of evidence; Weak recommendation)*

Among patients with COVID-19, should sotrovimab be used for treatment?

As of 16 January 2023

RECOMMENDATION

We suggest against the use of sotrovimab for the treatment of children and adult patients with COVID-19. *(Very low certainty of evidence, weak recommendation)*

Among patients with COVID-19, should convalescent plasma be used for treatment?

As of 18 November 2021

RECOMMENDATION

We recommend against the use of convalescent plasma in patients with COVID-19 infection. *(Moderate certainty of evidence, Strong recommendation)*

Should intravenous immunoglobulin (IVIG) be used for the treatment of COVID-19?

As of 18 May 2021

RECOMMENDATION

We suggest against the use of intravenous immunoglobulin as treatment for moderate to severe COVID-19. *(Very low certainty of evidence, Weak recommendation)*

Should mesenchymal stem cell therapy be used for the treatment of COVID-19?

As of 29 May 2021

RECOMMENDATION

There is insufficient evidence to recommend using umbilical cord-derived mesenchymal stem cell therapy among adults with severe COVID-19 (PaO2/FiO2 ratio ≤ 300 mmHg). *(Very low certainty of evidence)*

Among patients with COVID-19, should inhaled corticosteroids be used for treatment?

As of 18 November 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of inhaled corticosteroids in treatment of non-hospitalized COVID-19 patients. *(Very low certainty of evidence)*

Should steam inhalation be used for the treatment of COVID-19?

As of 12 March 2021

RECOMMENDATION

We recommend against the use of steam inhalation alone in the treatment of COVID-19. *(Very low certainty of evidence, Strong recommendation)*

Should virgin coconut oil (VCO) be used in the treatment of patients with COVID-19 infection?

As of 20 February 2021

RECOMMENDATION

There is no evidence to recommend the use of VCO as treatment among patients with COVID-19 infection.

Among patients with COVID-19, should Lianhua be used for treatment?

As of 03 April 2023

RECOMMENDATION

We suggest the use of Lianhua for the symptomatic relief of adult patients with non-severe COVID-19 (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We suggest against the use of Lianhua in children with COVID-19 (*Very low certainty of evidence, Weak recommendation)*

Should famotidine be used for the treatment of COVID-19?

As of 30 May 2021

RECOMMENDATION

We suggest against the use of famotidine in the treatment of COVID-19. (*Very low certainty of evidence, Weak recommendation)*

Should ibuprofen be used in the treatment of patients with COVID-19 infection?

As of 5 March 2021

RECOMMENDATION

We recommend against the use of ibuprofen as treatment among patients with COVID-19 infection. *(Very low certainty of evidence, Strong recommendation)*

Among patients with COVID-19, should metformin be used as treatment?

As of 19 March 2023

RECOMMENDATION

We suggest against the use of Metformin as treatment for COVID-19. *(Low certainty of evidence, weak recommendation)*

Living Recommendations for the Critical Care and Respiratory Management of COVID-19

Should intravenous corticosteroids be used in COVID-19?

As of 25 January 2023

RECOMMENDATION

We recommend the use of dexamethasone for up to 10 days among adult patients with severe and critical COVID-19 *(Moderate certainty of evidence, Strong recommendation)*

We suggest the use of methylprednisolone 1-2mg/kg/day for 5 to 10 days as an alternative to dexamethasone among adult patients with severe and critical COVID-19 *(Very low certainty of evidence, Weak recommendation)*

We recommend the use of standard-dose dexamethasone at 6 mg to 12 mg per day among adult patients with severe and critical COVID-19. *(Moderate certainty of evidence, Strong recommendation)*

We suggest that steroid therapy be initiated as soon as diagnosed or categorized as severe or critical COVID-19. *(Very low certainty of evidence, Weak recommendation)*

We suggest the use of dexamethasone at 0.15 mg/kg/day or a maximum dose of 6 mg per day for up to 10 days among children with severe and critical COVID-19 infection. *(Very low certainty of evidence, Weak recommendation)*

Should anticoagulation be used in treating patients diagnosed with COVID-19?

As of 20 February 2023

RECOMMENDATION

We suggest the use of prophylactic over therapeutic dose anticoagulation among hospitalized adults with moderate, severe or critical COVID-19 disease unless there are any contraindications. *(Low certainty of evidence, Weak recommendation)*

We suggest the use of standard dose prophylactic anticoagulation over intermediate dose prophylactic anticoagulation among hospitalized adults with COVID-19 disease unless there are any contraindications. *(Low certainty of evidence, Weak recommendation)*

We suggest the use of oral anticoagulation after hospital discharge among adults admitted for moderate to severe COVID-19 and who are suspected to have a high risk for VTE at-or-near hospital discharge. (Low certainty of evidence, Weak recommendation)

We suggest prophylactic dose anticoagulation among hospitalized pediatric patients more than 12 years of age with moderate to critical COVID-19 or MIS-C, unless there are any contraindications. *(Low certainty of evidence, Weak recommendation)*

We suggest prophylactic anticoagulation among hospitalized pregnant women with moderate to critical COVID-19, unless there are any contraindications. *(Low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We suggest against the routine use of any anticoagulation among adults with mild COVID-19 in the outpatient setting unless there is a pre-existing non-COVID indication for anticoagulation use. *(Low certainty of evidence, Weak recommendation)*

Should empiric antimicrobial coverage be given to patients with severe and critical COVID-19?

As of 15 April 2021

RECOMMENDATION

We recommend against the use of antibiotics in patients with severe and critical COVID-19 infection, unless with suspicion of secondary bacterial co-infection. For patients on empiric antibiotics, they should be assessed daily for the need for discontinuation, continuation or escalation based on clinical and laboratory parameters. *(Very low certainty of evidence; Strong recommendation)*

Should hemoperfusion be used in patients diagnosed with COVID-19?

As of 01 December 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of hemoperfusion among patients diagnosed with COVID-19. *(Very low certainty of evidence)*

Should a conservative fluid management strategy be used in mechanically ventilated adult COVID-19 patients?

As of 05 March 2021

RECOMMENDATION

We suggest the use of conservative fluid management rather than liberal fluid management strategy in mechanically ventilated adult COVID-19 patients with acute respiratory distress syndrome who have been adequately resuscitated*. *(Low quality of evidence; Weak recommendation)*

**without tissue hypoperfusion and fluid responsiveness*

Should side lying position be used in patients with severe to critical COVID-19?

Should self-proning be used in non-intubated patients with severe COVID-19?

As of 22 March 2023

RECOMMENDATION

We suggest awake prone positioning or self-proning in non-intubated adult patients with severe and critical COVID-19 (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We suggest prone positioning among intubated adult patients with critical COVID-19 in ARDS (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We suggest the use of side lying in non-intubated adult patients with severe and critical COVID-19 who cannot tolerate proning. (*Very low certainty of evidence, Weak recommendation)*

Should high flow nasal cannula be used for patients with COVID-19 and acute respiratory failure?

As of 15 March 2023

RECOMMENDATION

We suggest the use of high flow nasal oxygen therapy for patients with severe to critical COVID-19 who do not respond to conventional oxygen therapy (low flow nasal cannula/face mask). *(Low certainty of evidence, Weak recommendation)*

We suggest the use of either high flow nasal oxygenation therapy or non-invasive positive pressure ventilation in patients with severe to critical COVID-19 who do not respond to conventional oxygen therapy in the absence of any indication for emergent invasive mechanical ventilation. *(Very low certainty of evidence, Weak recommendation)*

We suggest the use of high flow nasal oxygen therapy for children with severe to critical COVID-19 who do not respond to conventional oxygen therapy (low flow nasal cannula/face mask). *(Very low certainty of evidence, Weak recommendation)*

Should non-invasive ventilation be used over high flow nasal cannula for patients with severe and critical COVID-19?

As of 03 January 2022

RECOMMENDATION

We suggest the use of either high flow nasal cannula or non-invasive positive pressure ventilation in COVID-19 patients with hypoxemic respiratory failure in the absence of any indication for emergent invasive mechanical ventilation. *(Low certainty of evidence; Weak recommendation)*

Should lung protective ventilation, high PEEP and driving pressure-limited strategies be used in the management of adult patients with COVID-19-associated acute respiratory distress syndrome?

As of 02 May 2023

RECOMMENDATION

We recommend the use of a lung protective ventilation strategy (tidal volume 4-6 mL/kg ideal body weight, plateau pressure less than 30 cmH2O and an appropriate PEEP) among mechanically ventilated adult patients with COVID-19-associated ARDS. (*Very low certainty of evidence, Strong recommendation)*

RECOMMENDATION

We suggest against the routine use of high PEEP strategy among mechanically ventilated adult patients with COVID-19-associated ARDS. We further suggest to individualize PEEP or employ a PEEP strategy based on respiratory mechanics (i.e., compliance) in patients with COVID-19 infection. (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

We suggest to keep the driving pressure less than 15 cmH2O among mechanically ventilated adult patients with COVID-19-associated ARDS. (*Very low certainty of evidence, Weak recommendation)*

Should rapid sequence intubation or delayed sequence intubation be used for the management of COVID-19?

As of 30 June 2021

RECOMMENDATION

We suggest the use of rapid sequence intubation for COVID-19 patients to reduce infection among healthcare workers performing the procedure. *(Very low certainty of evidence; Weak recommendation)*

Should extracorporeal membrane oxygenation (ECMO) be used in the management of Acute Respiratory Distress Syndrome (ARDS) among COVID-19 patients?

As of 19 May 2023

RECOMMENDATION

We suggest to offer the use of extracorporeal membrane oxygenation for judiciously selected adult COVID-19 patients with severe acute respiratory distress syndrome refractory to optimal mechanical ventilation based on ELSO or NHS England criteria. (*Very low certainty of evidence, Weak recommendation)*

**after careful consideration of cost, resources, expertise available*

RECOMMENDATION

We suggest to offer the use of extracorporeal membrane oxygenation for judiciously selected pediatric COVID-19 patients with severe acute respiratory distress syndrome refractory to optimal mechanical ventilation based on ELSO criteria. (*Very low certainty of evidence, Weak recommendation)*

**after careful consideration of cost, resources, expertise available*

Should hyperbaric oxygen therapy be used in COVID-19 patients with hypoxemia?

As of 01 December 2021

RECOMMENDATION

We suggest against the use of hyperbaric oxygen therapy for the management of COVID-19 patients with hypoxemia due to insufficient evidence. *(Very low certainty of evidence; Weak recommendation)*

Should sedation and neuromuscular blockade be done in mechanically ventilated patients with COVID-19-associated acute respiratory distress syndrome?

As of 03 January 2022

RECOMMENDATION

We suggest light over deep sedation in COVID-19 patients who are mechanically ventilated and who are anxious or agitated. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We suggest against the routine use of neuromuscular blockade in mechanically ventilated patients with COVID-19 associated respiratory distress syndrome. *(Low certainty of evidence; Weak recommendation)*

Should inhaled nitric oxide be used in patients with COVID-19?

As of 26 October 2021

RECOMMENDATION

We recommend against the use of nitric oxide among patients with COVID-19. *(Low certainty of evidence; Strong recommendation)*

Should etoposide be given among patients with severe COVID-19 pneumonia in cytokine storm?

As of 15 April 2021

RECOMMENDATION

We recommend against the use of etoposide among patients with COVID-19 pneumonia in cytokine storm. *(Very low certainty of evidence; Strong recommendation)*

Should pulmonary rehabilitation be done among long COVID patients with residual pulmonary symptoms to improve pulmonary function and quality of life?

As of 03 April 2023

RECOMMENDATION

We suggest individualized pulmonary rehabilitation with pre-intervention medical clearance for adult patients with long COVID syndrome who show residual pulmonary symptoms to improve pulmonary function and quality of life (*Very low certainty of evidence, weak recommendation)*

Should pirfenidone versus nintedanib be used as therapy for post-COVID-19 pulmonary fibrosis?

As of 26 October 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of pirfenidone or nintedanib among patients with post-COVID-19 pulmonary fibrosis. *(Very low certainty of evidence)*

Should intravenous immunoglobulin (IVIg)and steroids be used in children diagnosed with multisystem inflammatory syndrome in children (MIS-C)?

As of 19 May 2023

RECOMMENDATION

We suggest the use of steroids (methylprednisolone) rather than IVIg alone among children diagnosed with multisystem inflammatory syndrome (MIS-C). (*Very low certainty of evidence, Weak recommendation)*

We suggest to offer the use of IVIg in combination with steroids among children diagnosed with multisystem inflammatory syndrome associated with significant organ involvement. (*Very low certainty of evidence, Weak recommendation)*

Living Recommendations for the Non-Pharmacologic Interventions for Prevention and Control of COVID-19

In what settings in the community should mask wearing be required?

As of 02 May 2023

RECOMMENDATION

In the community setting, we recommend the use of a face mask for preventing COVID-19 in crowded, enclosed, and poorly ventilated spaces. (*Low certainty of evidence, Strong recommendation)*

Should cloth masks be used to prevent COVID-19 infection caused by Variants of Concern (VoC)?

As of 03 December 2021

RECOMMENDATION

We recommend the proper use of either a well-fitted cloth mask or a medical mask in the community setting. If a cloth mask will be used, we suggest that it should be made of at least two layers of cotton (e.g., t-shirt fabric) or non-woven nylon with aluminum nose bridge. *(Very low certainty of evidence; Strong recommendation)*

Is a facemask with face shield more effective than facemask alone in reducing SARS COV2 transmission?

As of 05 November 2021

RECOMMENDATION

We suggest against requiring the use of face shields in addition to face masks among the general public in non-healthcare settings. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We recommend the addition of face shields to face masks among the general public in areas with sustained community transmission of SARS-CoV-2. *(Very low certainty of evidence; Strong recommendation)*

We recommend the use of face shield plus medical face mask and standard personal protective equipment among health care workers not directly involved in the care of COVID-19 patients in areas with sustained community transmission of SARS-COV2. *(Very low certainty of evidence; Strong recommendation)*

Should copper-containing masks be used to decrease SARS-CoV-2 transmission?

As of 03 December 2021

RECOMMENDATION

There is no evidence to recommend the use of copper-containing over non-copper-containing masks to decrease SARS-CoV-2 transmission.

Should ionizing air filter be used in the prevention and control of COVID-19 infection in public spaces with sustained community transmission?

As of 30 June 2021

RECOMMENDATION

We recommend against the use of ionizing air purifier to reduce COVID-19 transmission in the community. *(Low certainty of evidence; Strong recommendation)*

Should foot baths be used in the prevention and control of COVID-19 infection?

As of 30 June 2021

RECOMMENDATION

We recommend against the use of foot baths for prevention and control of COVID-19 transmission. *(Very low certainty of evidence; Strong recommendation)*

Should misting tents or disinfection chambers be used in preventing and controlling COVID-19 transmission?

As of 30 June 2021

RECOMMENDATION

We recommend against the use of misting tents or disinfection chambers for preventing and controlling COVID-19 transmission. *(Very low certainty of evidence; Strong recommendation)*

Should ultraviolet (UV) lamps be used in the prevention and control of COVID-19 infection in public spaces in locations with sustained community transmission?

As of 30 June 2021

RECOMMENDATION

We recommend against the use of UV lamps or other UV devices in any place outside of a controlled clinic or hospital setting to prevent and control COVID-19 transmission. *(Low certainty of evidence; Strong recommendation)*

What ventilation and air filtration measures should be recommended to prevent COVID-19 transmission?

As of 22 May 2023

RECOMMENDATION

We recommend the use of natural ventilation* in indoor spaces to prevent COVID-19 transmission, if possible and safe to do so (*Good practice statement)*

**includes opening doors, windows and electric fans*

RECOMMENDATION

We recommend the use of mechanical ventilation systems with appropriate filtration systems* in indoor spaces to prevent COVID-19 transmission, if natural ventilation is not feasible or adequate. *(Very low certainty of evidence, Strong recommendation)*

**Includes HVAC systems and portable air cleaners*

Should high efficiency particulate air (HEPA) filters be used in the prevention and control of COVID-19 infection in public spaces and locations with sustained community transmission?

As of 30 June 2021

RECOMMENDATION

We suggest the use of HEPA filter as an option to improve air quality for COVID-19 prevention and control in indoor spaces with inadequate ventilation. *(Low certainty of evidence; Weak recommendation)*

Should carbon dioxide (CO2) monitors be used to reduce transmission of COVID-19?

As of 01 February 2023

RECOMMENDATION

We suggest the use of carbon dioxide (CO2) monitors in enclosed spaces to guide actions to improve ventilation and reduce the risk of transmission of SARS-CoV-2. *(Low certainty of evidence, Weak strength of recommendation)*

What are effective decontamination techniques for N95 reuse?

As of 30 June 2021

RECOMMENDATION

In situations where there is shortage of filtering facepiece respirators (FFR), we suggest the use of Hydrogen Peroxide Vapor (HPV), Ultraviolet Germicidal Irradiation (UVGI), moist heat and peracetic acid dry fogging system (PAF) as options for N95 mask decontamination as recommended by the manufacturer based on their ability to reduce SARS-COV-2 load and infectivity while still maintaining N95 mask integrity. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We recommend against the use of autoclave and alcohol as these methods alter filtering facepiece respirator's (N95) integrity and degrade filtration efficacy. *(Very low certainty of evidence; Strong recommendation)*

What is the appropriate PPE to be used use during surgeries to reduce the risk of virus transmission?

As of 30 June 2021

RECOMMENDATION

We recommend the use of appropriate PPE to include mask (N95 or higher standard), fluid repellent sealed well-fitting long gown, double gloves, apron, full face shield or goggles or visor, scrub hat, and disposable shoe covers or dedicated closed footwear among surgeons engaged in aerosol generating procedures of suspected or confirmed COVID-19 patients. *(Very low certainty of evidence; Strong recommendation)*

What is the appropriate PPE for healthcare workers in the outpatient setting to reduce the risk of virus transmission?

As of 30 June 2021

RECOMMENDATION

We recommend the use of at least surgical face mask and face shield for protection against COVID-19 infection among healthcare workers in the outpatient setting not performing aerosol generating procedures. Additional PPEs such as medical gowns and gloves should be worn as part of standard precautions during the performance of other procedures. *(Very low certainty of evidence; Strong recommendation)*

What is the appropriate PPE for health care workers in the wards, ICU and emergency room to reduce the risk of virus transmission?

As of 30 June 2021

RECOMMENDATION

We recommend the use of the following PPE: disposable hat, medical protective mask (N95 or higher standard), goggles or face shield (anti-fog), medical protective clothing, disposable gloves and disposable shoe covers or dedicated closed footwear as an effective intervention in the prevention of COVID-19 among health care workers in areas with possible direct patient care of COVID-19 positive patients and aerosol generating procedures. *(Moderate certainty of evidence; Strong recommendation)*

Should protective physical barriers be used to prevent COVID-19?

As of 30 June 2021

RECOMMENDATION

We suggest against the use of protective physical barrier enclosures (ex. aerosol box) for the prevention of COVID-19 among health care providers who perform aerosol generating medical procedures*. *(Very low certainty of evidence; Weak recommendation)*

**Proper PPEs should be used by health care providers when performing aerosol-generating procedures.*

RECOMMENDATION

We suggest the use of protective physical barriers in the prevention of COVID-19 in areas where social distancing cannot be adhered to (e.g., offices, reception desk). *(Very low certainty of evidence; Weak recommendation)*

***Adequate ventilation, physical distancing, use of facemasks and personal hygiene should still be maintained to prevent COVID-19 infections. Regular cleaning and disinfection of physical barriers should be practiced.*

Should surfaces be disinfected to prevent COVID-19 infection?

As of 30 June 2021

RECOMMENDATION

We recommend the practice of cleaning and disinfecting surfaces using the appropriate disinfecting chemical agents such as 0.5% sodium hypochlorite solution (bleach) or 70% alcohol to prevent COVID-19 infection. (*Low certainty of evidence; Strong recommendation*)

For high touch surfaces and high traffic areas, such as in the workplace, disinfection should be done before shift, intermittently during, and after the shift.

For household disinfection, once daily disinfection on high touch surfaces is recommended.

Living Recommendations for the Vaccines and Prophylactic Interventions for COVID-19

Among persons at risk, what is the clinical efficacy, effectiveness and safety of BBIBP-CorV (Sinopharm) in the prevention of SARS-CoV-2 infection?

As of 02 December 2021

RECOMMENDATION

We recommend the use of BBIBP-CorV (Sinopharm), given as 200U (WIV04) or 4ug (HBO2) in 0.5 ml in 2 doses, 21 days apart, to prevent symptomatic and asymptomatic COVID-19 infection among healthy adults (18 to 59 years old). *(Moderate certainty of evidence; Strong recommendation)*

We suggest the use of BBIBP-CorV to prevent severe COVID-19 infection among healthy adults (18 to 59 years old). *(Low certainty of evidence; Weak recommendation)*
We suggest the use of BBIBP-CorV to prevent symptomatic COVID-19 infection in the following:

a. Adults with comorbidities (*Very low certainty of evidence; Weak recommendation)*
b. Older persons (60 years and older) (*Very low certainty of evidence; Weak recommendation)*

There is insufficient evidence to recommend for or against the use of BBIBP-CorV to prevent COVID-19 infection among the following:

a. Children (3-17 years old) (*Very low certainty of evidence)*
b. Immunocompromised population (*Very low certainty of evidence)*
c. Pregnant and lactating women (*Very low certainty of evidence)*

In areas where the SARS-CoV-2 variants of concern are prevalent, there is insufficient evidence to recommend for or against the use of BBIBP-CorV to prevent COVID. (*Very low certainty of evidence)*

RECOMMENDATION

There is insufficient evidence to recommend for or against the use of BBIBP-CorV to prevent COVID-19 infection among the following:

1. Children (3-17 years old) (*Very low certainty of evidence)*
2. Immunocompromised population (*Very low certainty of evidence)*
3. Pregnant and lactating women (*Very low certainty of evidence)*

In areas where the SARS-CoV-2 variants of concern are prevalent, there is insufficient evidence to recommend for or against the use of BBIBP-CorV to prevent COVID. (*Very low certainty of evidence)*

Is CoronaVac (Sinovac) effective and safe in the prevention of COVID-19-infections?: A Rapid Review (Update)

As of 28 October 2021

RECOMMENDATION

We recommend the use of the CoronaVac (Sinovac), given as (given as 0.5 mL (600SU) to prevent symptomatic SARS-CoV-2 infection in:

- Healthy Adults *(Low certainty of evidence; Strong recommendation)*
- Pregnant women in their first trimester after consultation with a physician *(Very Low certainty of evidence; Strong recommendation)*
- Pregnant women in their 2nd and 3rd trimester and lactating women *(Very Low certainty of evidence; Strong recommendation)*
- Adults who have medical comorbidities *(including chronic respiratory disease and infection, cardiovascular disease, chronic kidney disease, cerebrovascular disease, diabetes mellitus, obesity, neurologic disorder, chronic liver disease and others like sickle cell disease, thalassemia, or Down's syndrome, as per DOH guidelines dated April 5, 2021 on the A3 Priority Group) (Low certainty of evidence; Strong recommendation)*
- Immunocompromised patients after medical clearance from a physician *(the immunocompromised include those diagnosed with HIV, hepatitis B and C, those with cancer undergoing chemotherapy, transplant patients receiving immunosuppression) (Low certainty of evidence; Strong recommendation)*

In areas where Delta is the predominant variant of concern, we recommend the use of CoronaVac (Sinovac) *(Very Low certainty of evidence; Strong recommendation)*

For immunocompromised patients who received primary CoronaVac (Sinovac) vaccination, we recommend for heterologous booster vaccination *(Very Low certainty of evidence; Strong recommendation)*

RECOMMENDATION

We suggest the use of CoronaVac (Sinovac) to prevent SARS-CoV-2 infection in older adults (> 60 years old). *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

We suggest against the use of CoronaVac (Sinovac) to prevent SARS-CoV-2 infection in children (3 to 17 years old) *(Very Low certainty of evidence; Weak recommendation)*

Under the current context of low vaccine coverage and inadequate vaccine supply, we recommend against booster vaccination using CoronaVac (Sinovac) in the healthy, adult population (18 years old and above) *(Low certainty of evidence; Strong recommendation)*

Is vaccination with BBV152 (Covaxin/Bharat) effective and safe in the prevention of COVID-19 infections?: A Rapid Review

As of 21 October 2021

RECOMMENDATION

We recommend the use of BBV152 (Covaxin/Bharat), 0.5 mL/dose, in a two-dose regimen, 28 days apart for the prevention of symptomatic COVID-19 infection in healthy adults*. (Moderate certainty of evidence; Strong recommendation)*

RECOMMENDATION

We suggest the use of BBV152 (Covaxin/Bharat), 0.5 mL/dose, in a two-dose regimen, 28 days apart for the prevention of symptomatic COVID-19 infection:

a. Adults who have stable medical co-morbidities and are at high risk for severe infection *(Low certainty of evidence; Weak recommendation)*
b. Healthy, older adults (>60 years old) *(Low certainty of evidence; Weak recommendation)*
c. Pregnant and lactating women, after discussing with a physician *(No direct evidence; Weak recommendation)*
d. Immunocompromised patients, after discussing with a physician *(No direct evidence; Weak recommendation)*

RECOMMENDATION

We suggest against the use of BBV152 (Covaxin/Bharat) for the prevention of COVID-19 in children and adolescents. *(No evidence; Weak recommendation)*

We recommend against the use of BBV152 (Covaxin/Bharat) in individuals who have known allergies to its contents/excipients. *(Best practice statement).*

Is NVX-Cov2373 (Novavax) effective and safe in the prevention of COVID-19 infection?

As of 27 December 2021

RECOMMENDATIONS

We suggest the use of NVX-CoV2373 (Novavax), given as 5ug (with 50ug Matrix M1 adjuvant) two doses, intramuscular, 21 days apart, for the prevention of symptomatic and severe SARS-CoV-2 infection in healthy adults. *(Low certainty of evidence; Weak recommendation)*

We suggest the use of NVX-CoV2373 (Novavax), given as 5ug (with 50ug Matrix M1 adjuvant) two doses, intramuscular, 21 days apart, for the prevention of symptomatic SARS-CoV-2 infection in older adults (>65 years old). *(Low certainty of evidence; Weak recommendation)*

We suggest the use of NVX-CoV2373 (Novavax), given as 5ug (with 50ug Matrix M1 adjuvant) two doses, intramuscular, 21 days apart, for the prevention of symptomatic SARS-CoV-2 infection in adults with comorbidities. *(Moderate certainty of evidence; Weak recommendation)*

In areas where the Alpha variant is predominant, we suggest the use of the NVX-CoV2373 (Novavax) given as 5ug (with 50ug Matrix-M1 adjuvant), two doses, intramuscular, 21 days apart, to prevent symptomatic SARS-CoV-2 infection. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATIONS

We suggest against the use of NVX-CoV2373 (Novavax), for the prevention of symptomatic SARS-CoV-2 infection in the immunocompromised population (specifically HIV positive individuals). *(Very low certainty of evidence; Weak recommendation)*

We suggest against the use of NVX-CoV2373 for the prevention of symptomatic SARS-CoV-2 infection among pregnant and lactating women. (*No direct evidence; Weak recommendation)*

In areas where the Beta variant is predominant, we suggest against the use of the NVX-CoV2373 (Novavax) to prevent symptomatic SARS-CoV-2 infection. *(Low certainty of evidence; Weak recommendation)*

We recommend against the use of the NVX-CoV2373 (Novavax) in individuals who have known allergies to its contents/excipients, such as Matrix-M1. *(Best practice statement)*

RECOMMENDATION

There is insufficient evidence to recommend for or against the use of NVX-2373 for the prevention of symptomatic SARS-CoV-2 infection among children.

Are vaccines effective and safe in the prevention of COVID-19 infections?

As of April 23, 2021

RECOMMENDATIONS

We recommend the use of the following vaccines to prevent symptomatic SARS-CoV-2 infection in adults: *(Moderate certainty of evidence; Strong recommendation)*

a. **BNT162b2 (Pfizer/BioNTech)** given as 0.3ml (30ug) intramuscular injections, in 2 doses, 21 days apart
b. **mRNA-1273 (Moderna)** given as 0.5ml (100ug) intramuscular injections, in 2 doses, 28 days apart
c. **ChAdOx1 (AstraZeneca)** given as 0.5 ml (5×10^6 vp) intramuscular injections, in 2 doses, **at least 12 weeks** apart
d. **Gam-COVID-Vac (Gamaleya)** given as rAd-26 0.5ml intramuscular injection, then rAd-5S 0.5 ml intramuscular injection 21 days after
e. **Ad26.COV2.S (Janssen/Johnson&Johnson)** given as 0.5ml single dose intramuscular injection

We recommend the use of CoronaVac (Sinovac) (given as 0.5ml (600SU) intramuscular injection, in 2 doses, at 28 days apart) to prevent symptomatic SARS-CoV-2 infection among adults: *(Low certainty of evidence; Strong recommendation)*

RECOMMENDATIONS

We recommend the use of BNT162b2 (Pfizer/BioNTech), mRNA-1273 (Moderna), ChAdOx1 (Astrazeneca), Gam-COVID-Vac (Gamaleya) and Ad26.COV2.S (Janssen/ Johnson & Johnson) vaccines to prevent symptomatic SARS-CoV-2 infection in older adults (>64 year old). *(Low certainty of evidence; Strong recommendation)*

We recommend the use of these vaccines in pregnant and lactating women after consultation with a physician. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

There is insufficient evidence to recommend the use of CoronaVac to prevent symptomatic SARS-CoV-2 Infection in older adults (>60-year-old). *(Very low certainty of evidence)*

RECOMMENDATION

We recommend the use of these vaccines in pregnant and lactating women after consultation with a physician. *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATIONS

We recommend the use of BNT162b2 (Pfizer/BioNTech), mRNA-1273 (Moderna), ChAdOx1 (Astrazeneca), Gam-COVID-Vac (Gamaleya) and Ad26.COV2.S (Janssen/ Johnson&Johnson) vaccines to prevent SARS-CoV-2 infection in adults who have stable medical comorbidities and those who are at risk for severe infection. *(Moderate certainty of evidence; Strong recommendation)*

We suggest the use of CoronaVac to prevent SARS-CoV-2 infection in adults who have stable medical comorbidities and those who are at risk for severe infection. *(Very low certainty of evidence; weak recommendation)*

RECOMMENDATIONS

We recommend the use of these vaccines to prevent SARS-CoV-2 infections in immunocompromised patients (i.e., diagnosed with HIV, hepatitis B and C, those with cancer undergoing chemotherapy, transplant patients receiving immune-suppression) after medical clearance from a physician. *(Low certainty of evidence; Strong recommendation)*

RECOMMENDATIONS

We recommend against the use of these vaccines in children to prevent SARS-CoV-2 infection: *(Weak recommendation)*

- BNT162b2: <16 years old
- ChAdOx1: <18 years old

There is no evidence on the use of mRNA-1273, GamCOVID-Vac, Ad26.COV2.S and CoronaVac in children to prevent SARS-CoV-2 infection.

RECOMMENDATIONS

We recommend against the use of particular vaccines in individuals who have known allergies to the contents/excipients of that vaccine, such as polysorbate (ChAdOx1, Gam-COVID-Vac and Ad26.COV2.S) and polyethylene glycol or PEG200 DMG (BNT162b2 and mRNA-1273). *(Moderate to high certainty of evidence; Strong recommendation)*

Is rAd26 (Sputnik Light) effective and safe in the prevention of COVID-19 infections?: A Rapid Review

As of 04 November 2021

RECOMMENDATION

We suggest the use of the rAd26 (Sputnik Light), given as 10^{11}vp per 0.5ml, single dose, intramuscularly to prevent symptomatic SARS-CoV-2 infection in:

a. Healthy adults *(Low certainty, Weak recommendation)*
b. Older adults (60 years and older) *(Low certainty, Weak recommendation)*
c. Adults with comorbidities *(Low certainty, Weak recommendation)*

In areas where Alpha, Beta or Delta is the predominant variant of concern, we suggest the use of rAd26 (Sputnik Light) to prevent COVID-19 infection. *(Very Low certainty, Weak recommendation)*

RECOMMENDATION

We suggest against the use of rAd26 (Sputnik Light) to prevent symptomatic SARS-CoV-2 infection in:

a. Children (3-17 years) *(No evidence, Weak recommendation)*
b. Pregnant and lactating women *(No evidence, Weak recommendation)*
c. Immunocompromised *(No evidence, Weak recommendation)*

Among adults who received the standard full doses of any COVID-19 vaccine, what is the clinical and immunologic efficacy and effectiveness and safety of a booster?

As of 27 December 2021

RECOMMENDATION

We suggest the following homologous booster vaccination regimen for the general adult population:

a. BNT162b2 *(Low certainty of evidence; Weak recommendation)*
b. mRNA-1273 *(Low certainty of evidence; Weak recommendation)*
c. ChAdOx1 *(Very low certainty of evidence; Weak recommendation)*
d. Ad26.Cov2.S *(Very low certainty of evidence; Weak recommendation)*
e. CoronaVac *(Very low certainty of evidence; Weak recommendation)*
f. BBIBP-CorV *(Very low certainty of evidence; Weak recommendation)*

We suggest the following heterologous booster vaccination regimen for the general adult population:

a. BNT162b2 primary, mRNA-1273 booster *(Very low certainty of evidence; Weak recommendation)*
b. BNT162b2 primary, Ad26.CoV2.S booster *(Very low certainty of evidence; Weak recommendation)*
c. mRNA-1273 primary, BNT162b2 booster *(Very low certainty of evidence; Weak recommendation)*
d. mRNA-1273 primary, Ad26.CoV2.S booster *(Very low certainty of evidence; Weak recommendation)*
e. ChAdOx1 primary, BNT162b2 booster *(Very low certainty of evidence; Weak recommendation)*
f. Ad26.COV2.S primary, BNT162b2 booster *(Very low certainty of evidence; Weak recommendation)*
g. Ad26.COV2.S primary, mRNA-1273 booster *(Very low certainty of evidence; Weak recommendation)*
h. CoronaVac primary, BNT162b2 booster *(Very low certainty of evidence; Weak recommendation)*
i. CoronaVac primary, ChAdOx1 booster *(Very low certainty of evidence; Weak recommendation)*
j. BBIBP-CorV primary, BNT162b2 booster *(Very low certainty of evidence; Weak recommendation)*

We suggest the following homologous booster vaccination for the immunocompromised population:

a. BNT162b2 *(Very low certainty of evidence; Weak recommendation)*
b. mRNA-1273 *(Low certainty of evidence; Weak recommendation*

We suggest the following heterologous booster vaccination regimen for the immunocompromised population:

a. an mRNA vaccine primary, another mRNA vaccine *booster (Very low certainty of evidence; Weak recommendation)*
b. an mRNA vaccine primary, ChAdOx1 booster *(Low certainty of evidence; Weak recommendation)*
c. BNT162b2 primary, mRNA-1273 booster *(Very low certainty of evidence; Weak recommendation)*
d. BNT162b2 primary, Ad26.CoV2.S booster *(Very low certainty of evidence; Weak recommendation)*
e. mRNA-1273 primary, Ad26.CoV2.S booster *(Very low certainty of evidence; Weak recommendation)*

RECOMMENDATION

There is insufficient evidence to recommend the following homologous booster vaccination in the general population:

a. Gam-COVID-Vac
b. BBV152

There is insufficient evidence to recommend the use of the heterologous booster vaccination regimens other than the combinations included above in the general adult population.

There is insufficient evidence to recommend the following homologous booster vaccination for the immunocompromised population:

a. ChAdOx1
b. Ad26.CoV2.S
c. CoronaVac
d. Gam-COVID-Vac
e. BBV152
f. BBIBP-CorV

There is insufficient evidence to recommend the use of the heterologous booster vaccination regimen other than the combinations included above in the immunocompromised population.

Among the general population, what is the clinical and immunologic efficacy, effectiveness, and safety of a second booster dose in the prevention of SARS-COV-2 infection?

As of 02 February 2023

RECOMMENDATION

We suggest the preferential use of the following bivalent vaccines over monovalent mRNA vaccines as a second homologous booster among the general population:

- BNT162b2
- mRNA-127

(Very low certainty of evidence, Weak recommendation)

RECOMMENDATION

There is no recommendation for Coronavac as a second homologous booster vaccination in the general population due to insufficient evidence. (Very low certainty of evidence)

**There is no available evidence on the use of the following as second homologous booster vaccination in the general population for Gam-COVID-Vac, ChAdOx1, BBV152, Ad26.CoV2.S, BBIBP-CorV, and other vaccines*

RECOMMENDATION

We suggest the administration of the following second heterologous booster vaccination in the general population:

- BNT162b2
- mRNA-1273 (monovalent)
- ChAdOx1

(Very low certainty of evidence, Weak recommendation)

**There is no available evidence on the use of the following as second homologous booster vaccination in the general population for Gam-COVID-Vac, ChAdOx1, BBV152, Ad26.CoV2.S, BBIBP-CorV, and other vaccines*

Among the healthcare workers, is a second COVID-19 vaccine booster dose effective and safe in preventing COVID-19 infection?

As of 19 December 2022

RECOMMENDATION

We recommend the use of the homologous monovalent BNT162b2 (Pfizer) second booster dose to prevent symptomatic COVID-19 infection in healthcare workers. (*Very low certainty of evidence, Strong recommendation)*

We recommend the use of the heterologous monovalent mRNA1273 (Moderna) second booster dose to prevent COVID-19 infection in healthcare workers. (*Very low certainty of evidence, Strong recommendation)*

**There is no available evidence on the use of CoronaVac, ChAdOx1, BBV152, Ad26.CoV2.S and other vaccines as a second booster in health care workers.*

Among persons of high-risk, what is the clinical and immunologic efficacy, effectiveness, and safety of a first booster dose (third dose)?

As of 23 March 2023

RECOMMENDATION

Among adult individuals with previous COVID-19 infection who received standard doses of COVID-19 vaccine primary series, we suggest the use of a homologous first booster dose of monovalent mRNA vaccine*. (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

Among the **elderly** population, we suggest the following COVID-19 vaccines as **homologous booste**r at least two months after the primary series.

- monovalent BNT162b2 (Pfizer-BioNTech) (*Very low certainty of evidence, weak recommendation)*
- AdCOV2.S (Janssen) (*Very low certainty of evidence, weak recommendation)*

RECOMMENDATION

Among the **immunocompromised***, we suggest the following vaccines as **homologous booster** at least two months after the second dose:

- Monovalent BNT162b2 (Pfizer-BioNTech) (*Very low certainty of evidence, weak recommendation)*
- Monovalent mRNA1273 (Moderna) (*Low certainty of evidence, weak recommendation)*

RECOMMENDATION

Among **immunocompromised** population*, we suggest the following **heterologous booster** vaccination regimen:

- mRNA-based / mRNA-based *(Very low certainty of evidence; Weak recommendation)*
- mRNA-based / AstraZeneca booster *(Very low certainty of evidence; Weak recommendation)*
- Pfizer / monovalent Moderna booster *(Very low certainty of evidence; Weak recommendation)*
- mRNA-based / J&J booster *(Very low certainty of evidence; Weak recommendation)*
- Astra-Zeneca 1st dose, Coronavac 2nd dose / monovalent Moderna or Pfizer booster (*Very low certainty of evidence; Weak recommendation*)
- Astra-Zeneca / monovalent Moderna or Pfizer booster (*Very low certainty of evidence; Weak recommendation*)
- Coronavac / Pfizer booster (*Very low certainty of evidence; Weak recommendation*)

RECOMMENDATION

Among **immunocompromised population**, there is insufficient evidence to recommend the following **heterologous booster** vaccination regimen:

- J&J / monovalent Moderna or monovalent Pfizer booster (*Very low certainty of evidence*)
- Coronavac primary / monovalent Moderna booster (*Very low certainty of evidence*)

Among persons of high-risk, what the clinical and immunologic efficacy, effectiveness, and safety of a third booster dose?

As of 06 March 2023

RECOMMENDATION

No recommendation can be made on the use of a third booster dose of COVID-19 vaccine (to complete 5 vaccine doses)* for the high-risk population because there is no available evidence.

**This refers to individuals who have received a 2-dose primary series regimen and 2 booster doses*

Among adults with previous infection, what is the clinical and immunologic efficacy, effectiveness, and safety of a booster dose?

As of 06 March 2023

RECOMMENDATION

Among adult individuals with previous COVID-19 infection who received standard doses of COVID-19 vaccine primary series, we suggest the use of a homologous first booster dose of monovalent mRNA vaccine*. (*Very low certainty of evidence, Weak recommendation)*

RECOMMENDATION

Among adults with previous COVID-19 infection who received standard doses of COVID-19 primary vaccine series, there is no recommendation for the use of a heterologous first booster dose of monovalent mRNA vaccine*, due to insufficient evidence.

a. Certainty of evidence: Very low

b. Strength of recommendation: None

**There is no available evidence for the use of bivalent mRNA vaccines, Coronavac (Sinovac), ChAdOx1 (AstraZenenca) and other vaccines as a first booster dose on adults with previous infection.*

Among adults, what is the clinical and immunologic efficacy and effectiveness and safety of heterologous COVID-19 vaccination compared to standard homologous COVID-19 vaccination in preventing COVID-19 infection?

As of 22 October 2021

RECOMMENDATION

We recommend the use of heterologous COVID-19 vaccination for those with serious adverse event to the first dose. *(Very low certainty of evidence; Strong recommendation)*

We suggest the use of heterologous COVID-19 vaccination in the event of the unavailability of the second dose in the recommended schedule. *(Very low certainty of evidence; Weak recommendation)*

Are COVID-19 vaccines efficacious in preventing COVID-19 infections caused by the B.1.617.2 (Delta) Variant?

As of 28 October 2021

RECOMMENDATION

In areas where the Delta variant is the predominant circulating variant, we recommend for the use of the following vaccine to prevent symptomatic and severe COVID-19:

a. 2 doses of BBV152 (Covaxin/Bharat)
   (Moderate certainty of evidence; Strong recommendation)
b. 2 doses of BNT162b2 (Pfizer)
   (Low certainty of evidence; Strong recommendation)
c. 2 doses of mRNA-1273 (Moderna)
   (Low certainty of evidence; Strong recommendation)
d. 2 doses of ChAdOx1 (Astra Zeneca)
   (Low certainty of evidence; Strong recommendation)
e. 2 doses of CoronaVac (Sinovac)
   (Very low certainty of evidence; Strong recommendation)

In areas where the Delta variant is the predominant circulating variant, we suggest the use of the following vaccines to prevent symptomatic and severe COVID-19:

a. Ad26.CoV2 (Janssen)
   (Low certainty of evidence; Weak recommendation)
b. Gam-COVID-Vac (Sputnik V)
   (Low certainty of evidence; Weak recommendation)

Among children 12 to 17 years old, what is the efficacy/effectiveness and safety of COVID-19 vaccines compared to placebo in preventing COVID-19?

As of 23 March 2023

RECOMMENDATION

We suggest the use of the BNT162b2 (Pfizer/BioNTech) vaccine, [given as 0.3 mL (30 ug) intramuscular injections, in 2 doses, 21 days apart] for children 12-15 years old to prevent symptomatic SARS-CoV-2 infection. *(Low certainty of evidence; weak recommendation*)

We suggest the use of the mRNA-1273 (Moderna) vaccine, [given as 0.5 mL (100 ug) intramuscular injections, in 2 doses, 28 days apart] for children 12-17 years old to prevent symptomatic SARS-CoV-2 infection. (*Low certainty of evidence; weak recommendation*).

RECOMMENDATION

There is insufficient evidence to recommend the use of the BNT162b2 (Pfizer/BioNTech) vaccine, [given as 0.3 mL (30 ug) intramuscular injections, in 2 doses, 21 days apart) for **immunocompromised** patients 12-21 years old to prevent symptomatic SARS-CoV-2 infection (*Very low certainty of evidence*).
There is insufficient evidence to recommend the use of the following for children 12-17 years old to prevent symptomatic SARS-CoV-2 infection:

- ChAdOx1 (AstraZeneca) (*Low certainty of evidence*)
- Coronavac (Sinovac) (*Low certainty of evidence*)
- BBIBP-CorV (Sinopharm) (*Low certainty of evidence*)
- Recombinant Adenovirus (*Low certainty of evidence*)

Among children aged 6 months to 4 years old, what is the clinical and immunologic efficacy and effectiveness and safety of the primary series COVID vaccine?

As of 02 February 2023

RECOMMENDATION

We suggest the use of monovalent mRNA-1273 (Moderna) vaccine in children 6 months to 4 years to prevent SARS-CoV-2 infection. (*Very Low certainty of evidence, Weak recommendation)*

We suggest the use of CoronaVac (Sinovac) vaccine in children 3-5 years to prevent SARS-CoV-2 infection. (*Very Low certainty of evidence, Weak recommendation)*

RECOMMENDATION

There is no recommendation on the use of **BNT162b2 (Pfizer-BioNTech)** in children 6 months to 4 years to prevent SARS-CoV-2 infection due to insufficient evidence *(Very low certainty of evidence)*

There is no recommendation on the use of CoronaVac (Sinovac) vaccine in children 6 months to 2 years to prevent SARS-CoV-2 infection due to lack of evidence. (*No evidence)*

There is no recommendation on the use of BBIBP-CorV (Sinopharm-Beijing) and WIBP-CorV (Sinopharm-Wuhan) in children 6 months to 2 years to prevent SARS-CoV-2 infection due to lack of evidence. *(No evidence)*

There is no recommendation on the use of BBIBP-CorV (Sinopharm-Beijing) and WIBP-CorV (Sinopharm-Wuhan) in children 3 to 5 years to prevent SARS-CoV-2 infection due to insufficient evidence. *(Low certainty of evidence)*

Among children aged 5 to 17 years old who received the standard full doses of any COVID vaccine, , what is the clinical and immunologic efficacy and effectiveness and safety of a booster dose?

As of 19 December 2022

RECOMMENDATION

We suggest the use of monovalent BNT1262b2 mRNA (Pfizer/BioNTech) vaccine as booster in healthy children 12-17 years old who received standard full doses of primary series to prevent SARS -COV-2 infection*. *(Very low certainty of evidence, weak recommendation)*

**After optimal coverage in the high risk priority groups have been achieved*

RECOMMENDATION

There is no recommendation being made this time on booster administration in healthy children 5 to 11 years old who received standard full doses of primary series to prevent SARS-COV-2 infection due to lack of evidence.

Is COVID-19 vaccination effective and safe among pregnant and lactating individuals and their infants in the prevention of COVID-19 infections?

As of 27 Decermber 2021

RECOMMENDATION

We suggest the use of following vaccines, after the first trimester, for the prevention of COVID-19 infection in pregnant and lactating women.

a. BNT162b2 (Pfizer) *(Low certainty of evidence; Weak recommendation)*
b. mRNA-1273 (Moderna) *(Low certainty of evidence; Weak recommendation)*
c. ChAdOx1 (AstraZeneca) *(No direct evidence; Weak recommendation)*
d. Ad26.CoV2.S (Janssen/Johnson&Johnson) *(No direct evidence; Weak recommendation)*
e. CoronaVac (Sinovac) *(No direct evidence; Weak recommendation)*
f. BBIBP-CorV (Sinopharm) *(No direct evidence; Weak recommendation)*
g. BBV152 (Covaxin) *(No direct evidence; Weak recommendation)*

RECOMMENDATION

We suggest against the use of the following vaccines for the prevention of COVID-19 infection in pregnant and lactating women:

a. Gam-CoV-Vac (Sputnik V) *(No direct evidence; Weak recommendation)*
b. NVX-2373 (Novavax) *(No direct evidence; Weak recommendation)*

Is BCG vaccination effective and safe in the prevention of COVID-19 infections?

As of 09 April 2021

RECOMMENDATION

We suggest against the use of BCG vaccine for the prevention of COVID-19 infection. *(Very low certainty of evidence; weak recommendation)*

Among close contacts of COVID-19 patients, should casirivimab + imdevimab cocktail be used as post-exposure prophylaxis?

As of 02 December 2022

RECOMMENDATION

We suggest against the use of casirivimab-imdevimab as post-exposure prophylaxis against COVID-19 (*Low certainty of evidence, Weak recommendation)*

Should AZD7442 (Tixagevimab-Cilgavimab) be used as prophylaxis for COVID-19 infection

As of 02 March 2023

RECOMMENDATION

We suggest against the use of AZD7442 (tixagevimab-cilgavimab) as pre-exposure prophylaxis against COVID-19 (*Very low certainty of evidence, Weak recommendation)*

We suggest against the use of AZD7442 (tixagevimab-cilgavimab) as post-exposure prophylaxis against COVID-19 (*Very low certainty of evidence, Weak recommendation)*

Should melatonin be used in the prevention of COVID-19 infection?

As of 26 February 2021

RECOMMENDATION

We recommend against the use of melatonin as prevention for COVID-19 infection. *(Very low certainty of evidence; Strong recommendation)*

Should Vitamin D supplementation be used in the prevention of COVID-19 infection?

As of 18 March 2021

RECOMMENDATION

We recommend against the use of Vitamin D supplementation to prevent COVID-19 infection. *(Very low certainty of evidence; Strong recommendation).*

Should zinc supplementation be used in the prevention of COVID-19 infection?

As of 18 March 2021

RECOMMENDATION

We recommend against the use of zinc supplementation to prevent COVID-19 infection. (*Very low certainty of evidence; Strong recommendation).*

Should hydroxychloroquine/ chloroquine be used in the prevention of COVID-19?

As of 12 March 2021

RECOMMENDATION

We recommend against the use of HCQ for pre-exposure prophylaxis in adults who are at high risk of exposure to COVID-19 cases. *(Moderate certainty of evidence; Strong recommendation)*

We recommend against the use of HCQ for post-exposure prophylaxis in adults who are exposed to COVID-19 cases. *(Low certainty of evidence; Strong recommendation).*

Should lopinavir/ritonavir be used as prophylaxis for the prevention of COVID-19?

As of 12 March 2021

RECOMMENDATION

We recommend against the use of lopinavir/ritonavir for chemoprophylaxis in individuals exposed to COVID-19 patients. *(Very low certainty of evidence; Strong recommendation)*

Should ivermectin be used as COVID-19 prophylaxis for the general population?

As of 17 April 2021

RECOMMENDATION

We recommend against the use of ivermectin as COVID-19 prophylaxis for the general population. *(Very low certainty of evidence; Strong recommendation)*

We recommend against the use of ivermectin for COVID-19 as post-exposure prophylaxis for household contacts of confirmed COVID-19 patients. *(Very low certainty of evidence; Strong recommendation)*

We recommend against the use of ivermectin for COVID-19 as prophylaxis for healthcare workers. *(Very low certainty of evidence; Strong recommendation)*

Should saline nasal irrigation be used for the prevention of COVID-19?

As of 12 March 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of saline nasal irrigation (SNI) to prevent COVID-19 in healthy individuals. *(Very low certainty of evidence)*

Should steam inhalation be used for the prevention of COVID-19?

As of 12 March 2021

RECOMMENDATION

We recommend against the use of steam inhalation in the prevention of COVID-19. (*Very low certainty of evidence; Strong recommendation)*

Should aspirin be used for prophylaxis against COVID-19-induced coagulopathy in patients with COVID-19?

As of 02 June 2021

RECOMMENDATION

There is insufficient evidence on the use of aspirin as prophylaxis against COVID-19-induced coagulopathy among patients with COVID-19. *(Very low certainty of evidence*)

Living Recommendations for the Adjunct Interventions for Prevention and Control of COVID-19

Should zinc be used as adjunctive treatment for COVID-19 infection?

As of 21 December 2021

RECOMMENDATION

There is insufficient evidence to recommend zinc as adjunctive treatment for COVID-19 infection. *(Low certainty of evidence)*

Should B Vitamins be used as an adjunct in the treatment of COVID-19?

As of 30 June 2021

RECOMMENDATION

We suggest against the use of B vitamins as adjunct in the treatment of patients with COVID-19. *(Very low certainty of evidence; Weak recommendation)*

Should vitamin C be used in the adjunctive treatment of COVID-19?

As of 21 December 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of vitamin C as adjunctive treatment for patients with COVID-19. *(Low certainty of evidence)*

Among patients with COVID-19, should Vitamin D be used as adjunctive treatment?

As of 03 December 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of Vitamin D supplementation as an adjunct treatment for patients with COVID-19 infection. *(Very low certainty of evidence)*

Should melatonin be used in the adjunctive treatment of COVID-19?

As of 30 June 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of melatonin as adjunct treatment for patients with COVID-19 infection. *(Very low certainty of evidence)*

Should virgin coconut oil be used in the adjunctive treatment of COVID-19?

As of 30 June 2021

RECOMMENDATION

There is no evidence to recommend the use of VCO as treatment among patients with COVID-19 infection.

Should Lagundi (Vitex negundo) be used as adjunctive treatment for COVID-19 infection?

As of 29 October 2021

RECOMMENDATION

There is no evidence to recommend Lagundi *(Vitex negundo)* as adjunctive treatment for patients with COVID-19 infection.

Should Tawa-tawa (Euphorbia hirta) be used as adjunctive treatment for COVID-19 infection?

As of 29 October 2021

RECOMMENDATION

There is no evidence to recommend Tawa-tawa *(Euphorbia hirta)* as adjunctive treatment for patients with COVID-19 infection.

Should oral fatty acid supplements be used as adjunct treatment for patients with COVID-19?

As of 30 June 2021

RECOMMENDATION

There is insufficient evidence to recommend the use of fatty acid supplements as adjunct treatment for patients with COVID-19. *(Low certainty of evidence)*

Should N-acetylcysteine be used as an adjunct treatment for patients diagnosed with COVID-19?

As of 30 June 2021

RECOMMENDATION

We recommend against the use of intravenous N-acetylcysteine as adjunct treatment for patients with COVID-19 infection. *(Moderate certainty of evidence; Strong recommendation)*

Should RAAS blockers be continued in patients with COVID-19?

As of 30 June 2021

RECOMMENDATION

We recommend continuing maintenance RAAS blockers for hypertension among patients with COVID-19 infection. *(Moderate certainty of evidence; Strong recommendation)*

Should statins be used as adjunctive treatment in patients with COVID-19?

As of 29 October 2021

RECOMMENDATION

There is insufficient evidence to recommend statins as adjunctive treatment in patients with COVID-19. *(Very low certainty of evidence)*

Does the concurrent use of Ibuprofen worsen COVID-19 outcomes?

As of 30 June 2021

RECOMMENDATION

We suggest that Ibuprofen may still be used as symptomatic treatment of patients with COVID-19 infection if clinically warranted. Concurrent use of ibuprofen is not associated with worsening of COVID-19 outcomes. *(Very low certainty of evidence; Weak recommendation)*

Should aspirin, taken as maintenance therapy for underlying medical conditions, be discontinued in patients with COVID-19?

As of 30 June 2021

RECOMMENDATION

There is insufficient evidence to recommend discontinuation of aspirin as maintenance therapy for underlying medical conditions in patients with COVID-19. *(Very low certainty of evidence)*

Should antiseptic mouthwashes/gargles be used be as adjunctive treatment for COVID-19 infection?

As of 21 December 2021

RECOMMENDATION

We recommend against the use of any antiseptic mouthwash as an adjunctive therapy for patients with COVID-19. *(Very low certainty of evidence; Strong recommendation)*

RECOMMENDATION

We recommend against the use of any antiseptic mouthwash to prevent COVID-19 in healthy individuals. *(Very low certainty of evidence; Strong recommendation)*

Should nasal sprays be used in the prevention and treatment of COVID-19 infection?

As of 03 December 2021

RECOMMENDATION

We suggest against the use of nasal spray as an adjunct to treatment of COVID-19 infection. *(Low certainty of evidence; Weak recommendation)*

RECOMMENDATION

There was no consensus on the use of nasal spray in addition to other preventive interventions such as vaccination, proper use of personal protective equipment, and adherence to quarantine and isolation protocols to prevent COVID-19 infection.

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