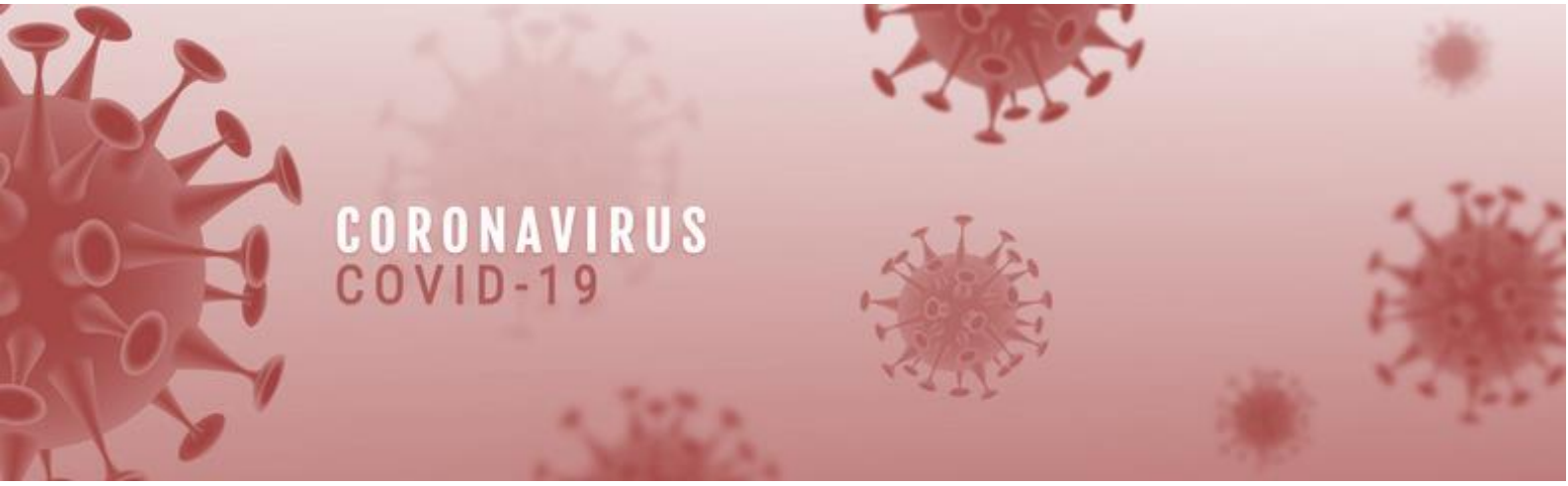
المركز السعودي لزراعة الأعضاء
Saudi Center for Organ Transplantation (SCOT)

# Position Statement on Organ Transplant and Donation during Coronavirus Disease (Covid-19) Pandemic

*Version 6 April, 2020*



## Objectives

- Provide recommendations on transplantation in the current COVID-19 pandemic by the Saudi Center for Organ Transplant (SCOT).

## General Statements

- Document will be updated periodically based on the Ministry of Health updates of case definition and treatment Guidelines and based on emerging evidence. This is the second version
- Postponing all elective non urgent transplants is strongly advised given the increasing number of confirmed COVID-19 cases locally and internationally.
- Lung transplant cases should be discussed in an individualized basis and after multidisciplinary team consensus (Transplant ID physician, Thoracic surgeon and transplant pulmonologist).
- Routine outpatient clinic appointments should be prioritized according to patient's need. Whenever possible, virtual clinic or phone calls should be utilized whenever appropriate.
- Patients should be advised to wear surgical masks in case they need to attend the hospitals for appointments or laboratory investigations
- Transplant centers should follow the institutional/MOH recommendations regarding the COVID-19 precautions in the inpatient and operating room settings
- All caregivers must document clear and sufficient information in the patient's medical records regarding the following [1]
    - Reasons for postponing and rescheduling surgeries need to be documented clearly (due to the COVID-19 pandemic, condition of the recipient/donor, etc)
    - In case of urgent transplant, risk of COVID-19 infection must be explained to the patient and documented clearly in the patient's medical record
    - After successful transplantation, patient and family education regarding COVID-19 together with clear written discharge instruction should be provided prior to discharge.

## Introduction

Coronaviruses are single stranded RNA viruses that belong to the family of Coronaviridae [2]. The novel coronavirus (SARS-CoV2) that causes COVID-19 disease is a novel virus that started in Wuhan China December 2019 and has speared globally [3]. The virus is transmitted via respiratory droplets between close contacts including from asymptomatic patients and also by infected patients or touching contaminated surfaces [4, 5].

The median incubation period is estimated to be around 5.1 days with majority of patients who became symptomatic did so within 12 days of infection [6, 7]

Diagnosis is made via PCR testing. The highest sensitivity of the PCR was seen from lower respiratory samples (75% for sputum samples and 93% for bronchoalveolar lavage). Oropharyngeal (OP) and nasopharyngeal (NP) swabs showed lower sensitivity were 32% and 63% respectively [8]. This is the basis of the World Health Organization recommendation of requiring 2 tests to be done 24 hours apart (test is defined by one OP and one NP, which means 4 swabs) to be done for screening and for cure [9]. Level of viremia is not clearly defined.

Around 2000 cases are diagnosed currently in Saudi Arabia with 3 main regions being the hotspots (Makkah, Madinah and Riyadh regions). To follow the number of cases around the country, you can access the following link https://covid19.moh.gov.sa/

As of the date of this statement, no confirmed cases of donor derived COVID-19 infection. Reported transplant cases followed the same course of infection as non-transplant infected patients.

## Section I

### Statement of Recommendation on Deceased Donors

- In this section we revised the following
    - Given the wider availability of testing in the Kingdom and with the evidence of community transmission, all potential donors SHOULD be tested regardless, no deceased donors will be accepted without documented negative testing from lower respiratory sample.
    - Risk classifications
        - Intermediate risk category has been removed.
        - High risk are deceased donors from the three hotspots regions or if the potential donor is in a hospital with active COVID-19 cases (other patients or health care workers)
        - Low risk are the deceased donors from other regions or if the potential donor is in a hospital with no active COVID-19 cases (other patients or health care workers)
    - High risk potential donors should be re-tested with another lower respiratory sample. If both samples are negative can proceed with transplantation
    - Low risk potential donors with negative test can proceed with transplantation.

**Table 1 Deceased Donors Risk Stratification**

| |
|---|
| **High Risk any of the following:**<br>1. From Makkah, Madinah and Riyadh regions or Al-Qatif or Alhofuf cities.<br>2. In a hospital with active COVID-19 cases (other patients or health care workers) |
| **Low Risk:**<br>1. Regions other than what is mentioned in the high-risk category<br>2. In a hospital with NO active COVID-19 cases (other patients or health care workers) |

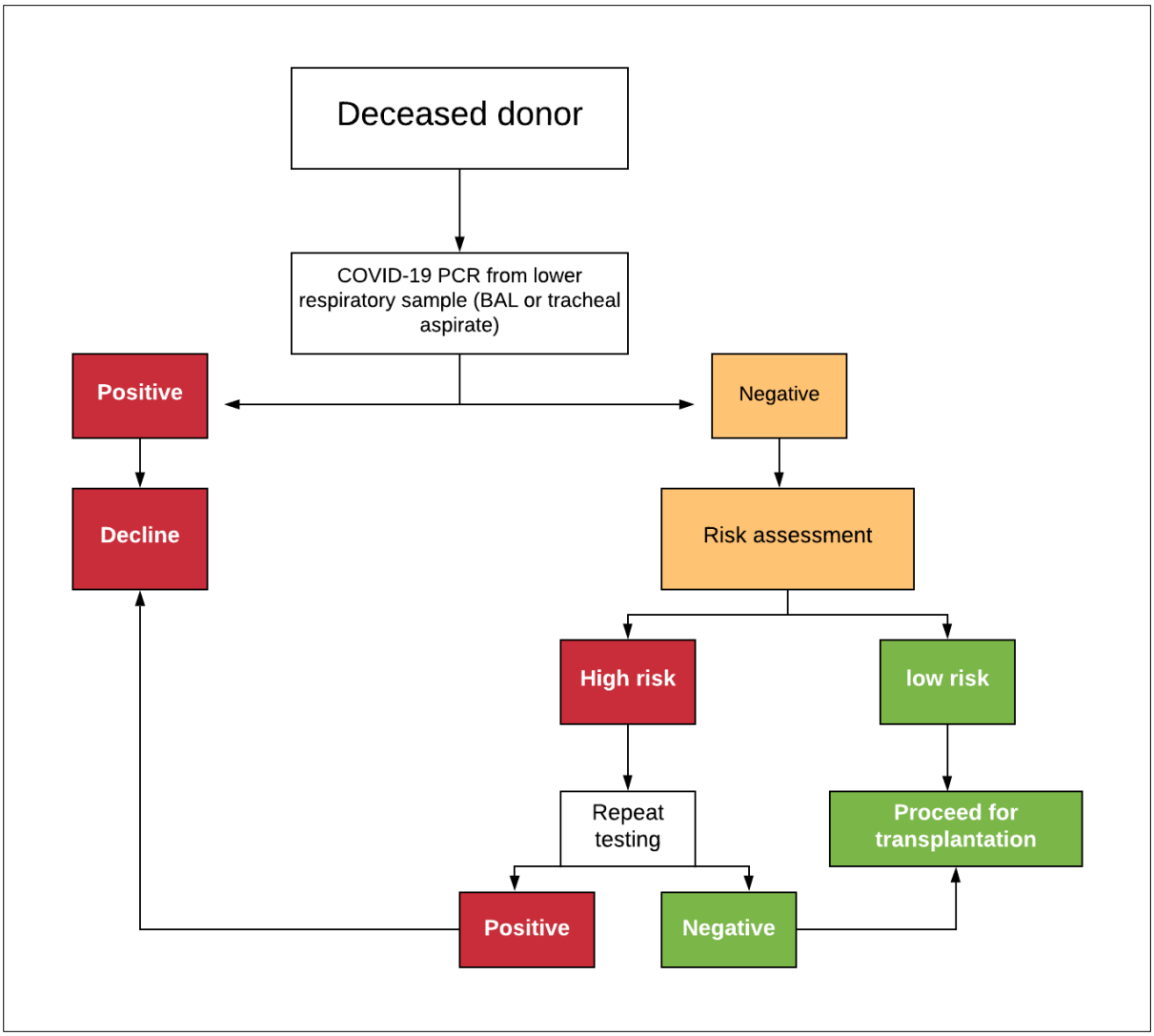



**Figure 1: Approach to deceased donors during COVID-19 pandemic**

# Section II

## Recommendation and Guidance on Living Donors

- Living donors with respiratory symptoms or with positive COVID-19 SHOULD be declined
- All asymptomatic living donors should be screened prior to transplantation
- Screening will be done using Nasopharyngeal AND oropharyngeal swab for COVID-19
- Donors who report contact with confirmed COVID-19 case OR form high risk areas (Makkah, Madinah and Riyadh regions or Al-Qatif or Alhofuf cities) will need to have repeat testing after 4 days. Otherwise one test (Nasopharyngeal AND oropharyngeal) is enough
- If the living donor had history of previous COVID-19 disease more than 28 days with a documented negative repeated test (two negatives 24 hours apart) he/she can be cleared for donation.
- Post-transplant, all donors should be followed for minimum 1 month regular for any respiratory infection
- Living donor should instructed to report to the transplant center/ coordinator any respiratory symptoms/illness during the post-transplant period (first 1-2 months)

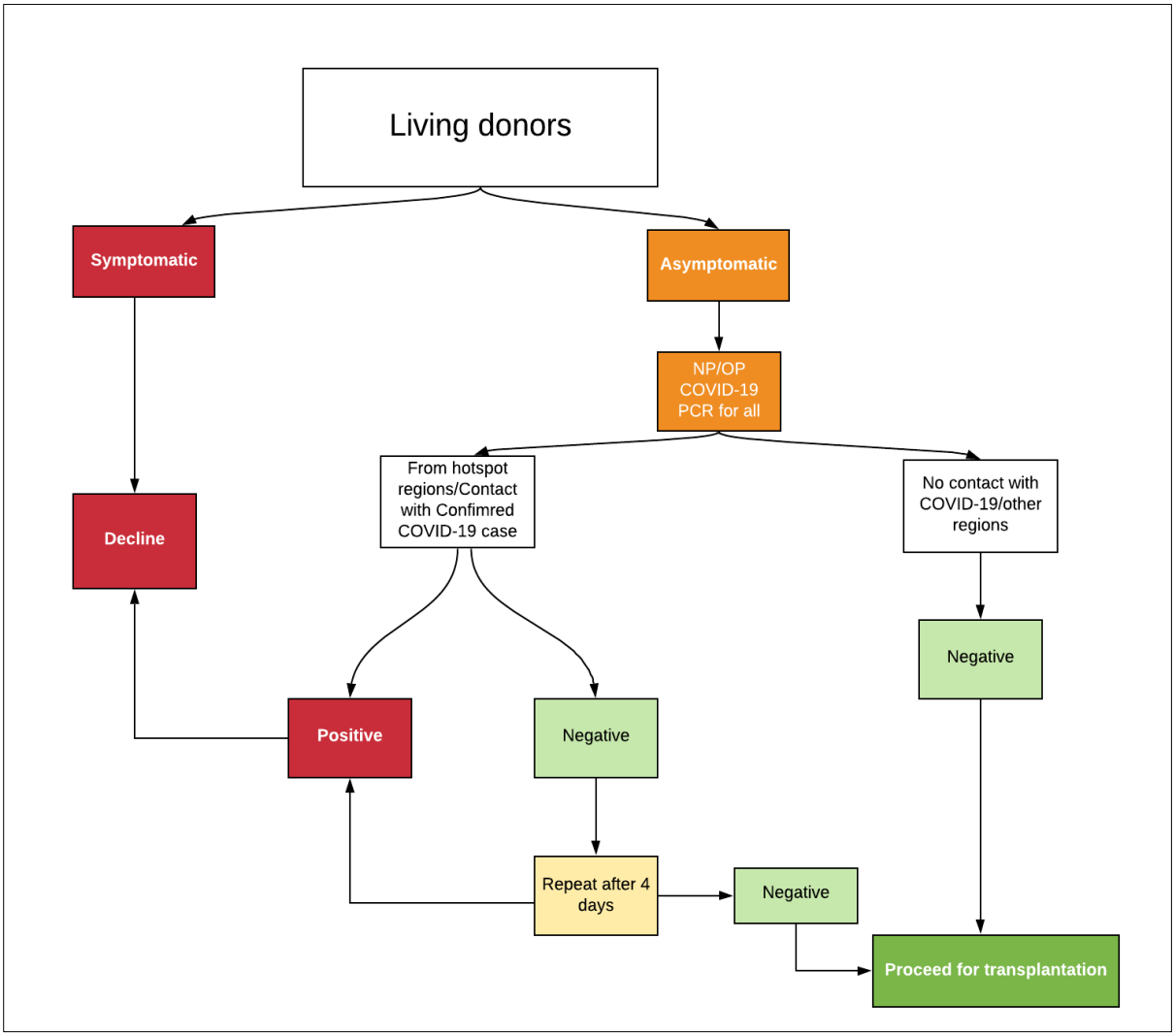



**Figure 2: Approach to living donors during COVID-19 pandemic**

# Section III

## Recommendation and Guidance on Testing and Management of Transplant Candidates

- All transplant candidates should be prior to transplantation
- Screening will be done using Nasopharyngeal AND oropharyngeal swab for COVID-19
- Candidates who report contact with confirmed COVID-19 case OR form high risk areas (Makkah, Madinah and Riyadh regions or Al-Qatif or Alhofuf cities) will need to have repeat testing after 4 days. Otherwise one test (Nasopharyngeal AND oropharyngeal) is enough
- If the patient tests negative for the screening he/she is clear for transplant.
- In case of urgent transplantation where transplant cannot be postponed for 4 days, deep respiratory sample (BAL or tracheal aspirate) should be sent before extubating patient.
    - In these cases, local institutional policy of operating on suspected cases have to be followed.
- If patient tests positive, then a multidisciplinary team (MDT) meeting should be done to decide on the appropriateness and timing of the transplant if it will be done.

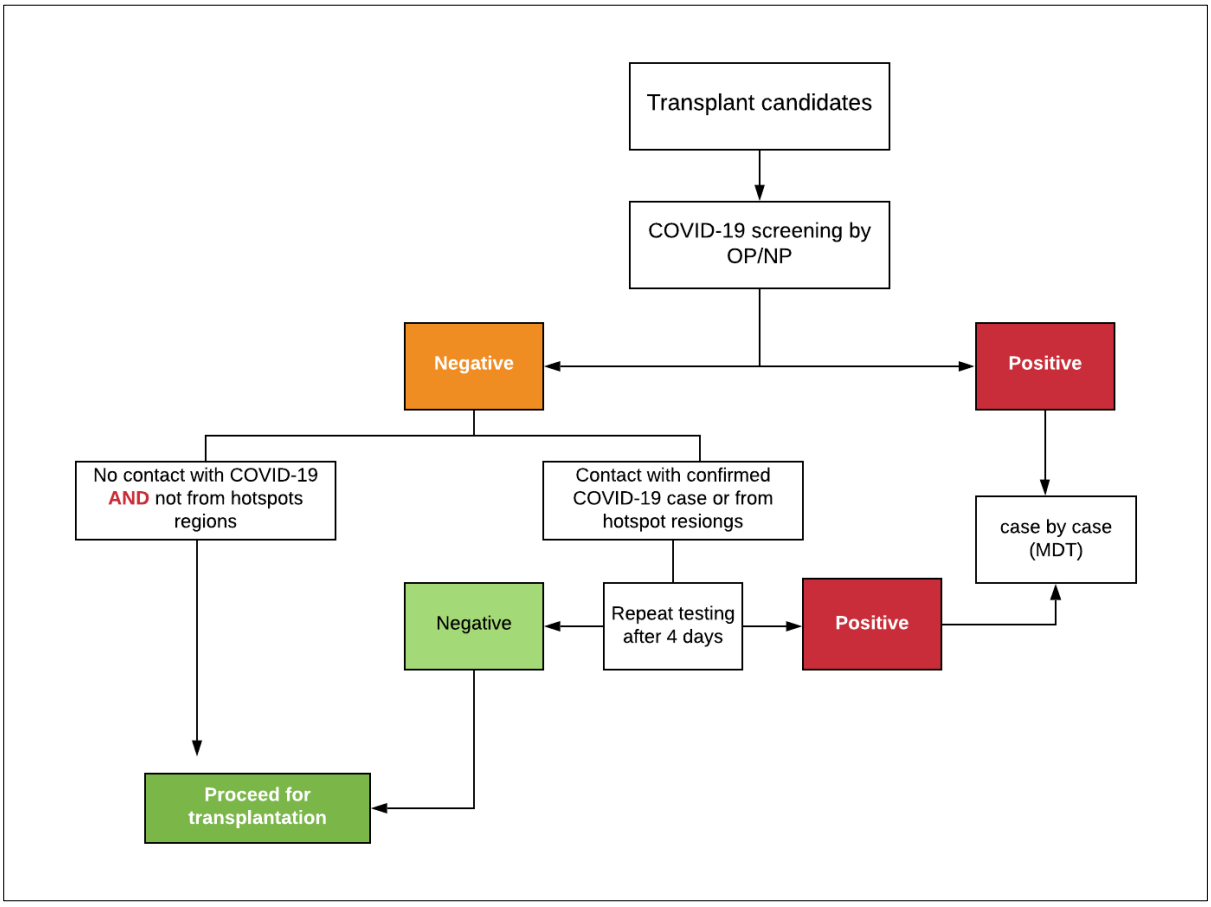



**Figure 3: Approach to transplant candidate during COVID-19 pandemic**

## Section IV

## Recommendation and Guidance on Testing and Management of Transplant Recipients

- Any Transplant recipient event mainly respiratory illness during the early post-transplant period (1-3 months) that might concerning for possible COVID-19 disease or if confirmed to have COVID-19 should be reported to the SCOT in a timely fashion

- Transplant recipients who present with respiratory symptoms should do the following:
  1. Wear a surgical mask.
  2. Call their transplant centers.
  3. Transplant coordinator/Nurse/Physician should assess symptoms severity and decision to test for COVID-19.
  4. Specimen collection should be arranged for test by PCR for all respiratory viruses, MERS-CoV, Influenza.
  5. Arrange for Chest X-ray, if the CXR is negative, the decision for further imaging should be discussed between ID physician, transplant team, transplant surgeon and institution radiology department.

- If the COVID-19 screening test is positive, patients should be admitted as per MOH regulations and ID consultation should be made to assess the patient for the start of treatment according to local/MOH guidelines regardless of symptoms severity.

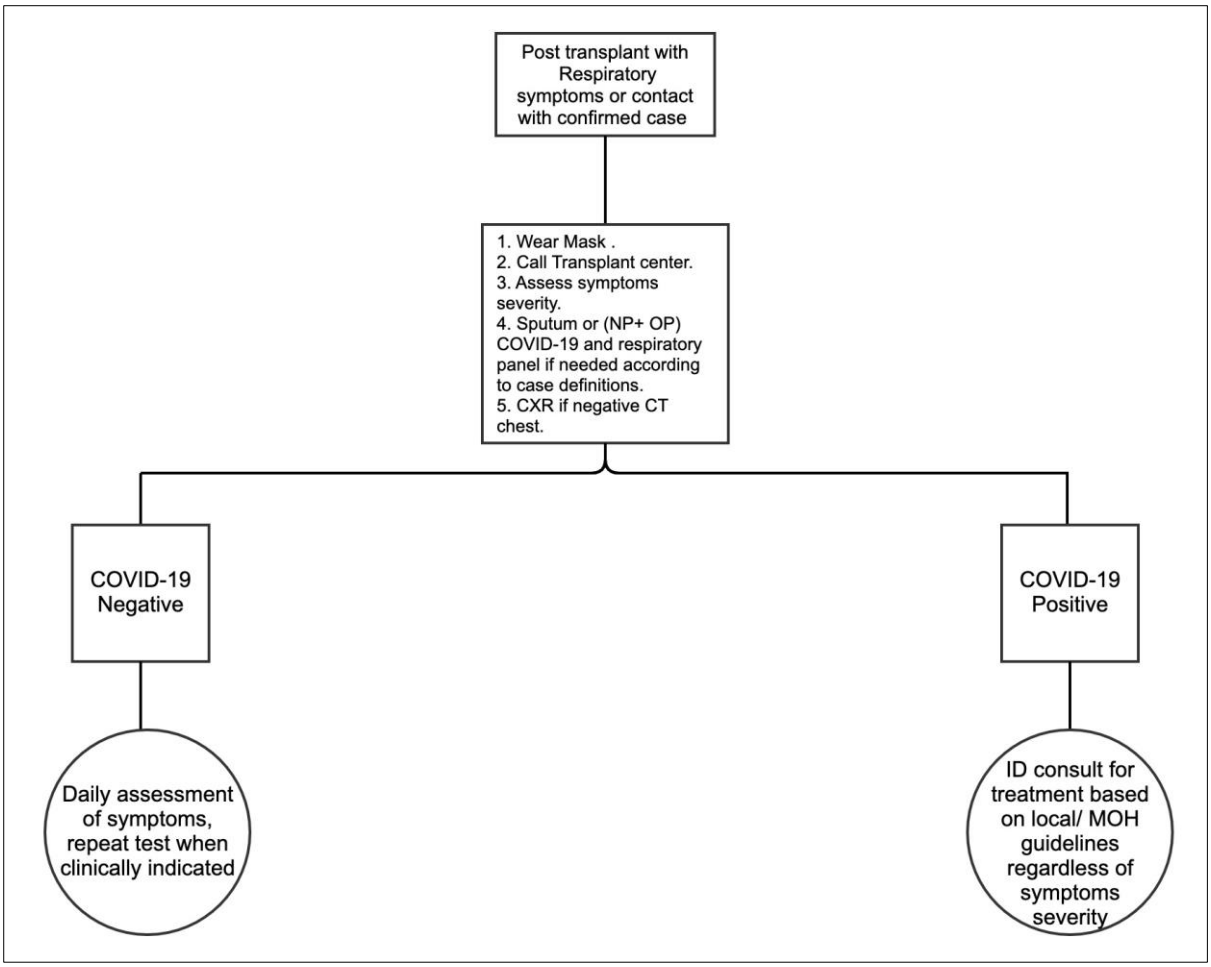



**Figure 4: Approach to transplant recipient with respiratory symptoms during COVID-19 Pandemic**

# Section V

## Recommendation and Guidance on treatment of COVID-19 in transplant recipients

- Treatment should be decided according to institutional guidelines.
- Always check for drug-drug interactions with other immunosuppressants prior to prescribing any antimicrobial therapy and preferably with the help of a clinical pharmacist.
- There is a major drug-drug interaction between protease inhibitors that are used in the COVID-19 treatment e.g. Combination Lopinavir/Ritonavir, Darunavir and the subscribed immunosuppressants.
- Most important interactions and suggested modifications are summarized in Table-2.
- Please note that close monitoring of immunosuppressants level is required during the treatment period.

**Table 2 Effect of Protease Inhibitors on different immunosuppressant and suggested dose changes**

| Immunosuppressant | Protease Inhibitor effects | Suggested Actions |
|---|---|---|
| **Glucocorticoids** | Potential Steroid toxicity and enhanced side effects | Decrease Steroid dose. |
| **Mycophenolate Mofetil** | Decreased Mycophenolate Mofetil level | Increase Mycophenolate Mofetil dose |
| **Calcineurin inhibitors (Tacrolimus, Cyclosporin)** | Increases risk of toxicity | Follow levels closely while on therapy and adjust dose accordingly |
| **mTOR Inhibitors (Sirolimus, Everolimus)** | Increased risk of toxicity | Follow levels closely while on therapy and adjust dose accordingly |

# References


1. United Network of Organ Sharing, U.N.O.S, *Actions address transplant candidate data reporting, candidate inactivation related to COVID-19.* 2020
2. Richamn DD, W.R., Hayden FG, eds, *Clinical virology* 4th ed. 2016: ASM press.
3. Ren, L.L., et al., *Identification of a novel coronavirus causing severe pneumonia in human: a descriptive study.* Chin Med J (Engl), 2020.
4. Li, C., et al., *Asymptomatic and Human-to-Human Transmission of SARS-CoV-2 in a 2-Family Cluster, Xuzhou, China.* Emerg Infect Dis, 2020. **26**(7).
5. van Doremalen, N., et al., *Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1.* N Engl J Med, 2020.
6. Zou, L., et al., *SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients.* N Engl J Med, 2020. **382**(12): p. 1177-1179.
7. Hoehl, S., et al., *Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China.* N Engl J Med, 2020.
8. Wang, W., et al., *Detection of SARS-CoV-2 in Different Types of Clinical Specimens.* JAMA, 2020.
9. World Health Organization., W.H.O. *Laboratory testing for coronavirus disease 2019 (COVID-19) in suspected human cases: interim guidance, 2 March 2020. World Health Organization.* 2020; Available from: https://apps.who.int/iris/handle/10665/331329.
10. The Transplantion Society. *Guidance on Coronavirus Disease 2019 (COVID-19) for Transplant Clinicians*. 2020 16 March 2020 [cited 2020; Available from: https://tts.org/23-tid/tid-news/657-tid-update-and-guidance-on-2019-novel-coronavirus-2019-ncov-for-transplant-id-clinicians.
11. Chang L, Zhao L, Gong H, Wang Lunan, Wang L. Severe acute respiratory syndrome coronavirus 2 RNA detected in blood donations. Emerg Infect Dis. 2020 Jul [*date cited*]. https://doi.org/10.3201/eid2607.200839