



## National Transplant Consensus Guidance on COVID-19 Vaccine

The following document provides expert consensus guidance that can be used by provincial organ donation organizations and regional transplant and donation programs to guide the management of COVID-19 vaccination in transplant recipients in light of the pandemic. It is understood that each organization, program, and jurisdiction will develop their own policies.

Since the situation is rapidly evolving, going forward, regular teleconferences will be held with national experts to discuss and update this consensus guidance. These discussions, and the consensus itself, will continue to be informed by recommendations from the Canadian Society for Transplantation, Canadian Blood Services' advisory committees, Health Canada, Public Health Agency of Canada, WHO, provincial agencies, and international partners (including UK and Spain).

This document was last updated on **December 18<sup>th</sup>, 2020** and will continue to be updated as new evidence and information becomes available.

### **What do we know about COVID-19 and transplant recipients?**

COVID-19 is a disease caused by the SARS-CoV-2 virus that is predominantly a respiratory virus but can cause multi-system disease. Several organ transplant recipients have contracted COVID-19 and symptoms have ranged from mild disease to the need for ICU care and death. Whether COVID-19 is more severe due to immunosuppression is unclear; however, many transplant patients also have other comorbid conditions such as advanced age, chronic kidney disease, diabetes, and heart/lung disease that put them at increased risk of severe COVID-19 disease. Lung transplant patients also seem to be at particularly high risk of severe disease.

### **What is the status of COVID-19 vaccine in Canada?**

There are several formulations of the COVID-19 vaccine in various stages of development and/or approval. One vaccine (Pfizer/BioNTech) was authorized for use by Health Canada on December 9<sup>th</sup>, 2020 for use in persons 16 years of age and older. This is a vaccine given in two doses separated by 21 days. It is a vaccine composed of mRNA in a lipid nanoparticle and requires ultra-cold storage. It has 95% efficacy in a phase 3 randomized, placebo-controlled trial of 43,548 individuals. Other vaccines, including the Moderna mRNA vaccine (94.1% efficacy in a phase 3 trial) and the University of Oxford/AstraZeneca adenovirus vector vaccine (62-90% efficacy in a phase 3 trial), are also under consideration and may be authorized in Canada in the future.

### **What are the side effects of COVID-19 vaccine?**

Local and systemic side effects can occur after vaccine. These include local tenderness, swelling, and erythema. Relatively common systemic symptoms include fever, myalgias, and headache. In the Pfizer vaccine trial, systemic symptoms were more common in younger age groups and after the second vaccine dose. Systemic symptoms are similar to COVID-19 disease so patients receiving vaccine should be



counseled on the possibility of these symptoms occurring in the first few days after each vaccine dose.

### **What data are available about the COVID-19 vaccine in transplant recipients?**

Currently, there are no efficacy, immunogenicity, or safety data available for transplant patients with any COVID-19 vaccine. Transplant recipients were not enrolled in phase 3 studies of vaccine. However, with the licensure of vaccine in many countries, more information is expected.

### **Can transplant patients receive the COVID-19 vaccine?**

Although further data is needed, based on the opinion of experts (see below) transplant patients may receive the vaccine. Experts believe that based on the mechanism of action of mRNA vaccine, there is no reason to suspect that adverse events will be any different than in the general population. Based on expert opinion, the potential benefits of vaccine likely outweigh theoretical risks. mRNA leads to a vaccine-specific immune response and the generation of alloimmunity or rejection following vaccination is unlikely based on the mechanism of the vaccine, and broad experience with other types of vaccines in the transplant population. For optimum vaccine efficacy, it is suggested that:

- When possible, vaccine be administered in the pre-transplant setting with the final dose at least 1-2 weeks prior to transplant
- It is not necessary to put a patient on hold for transplant while waiting for vaccination
- In post-transplant patients, wait at least 1 month after transplant to provide the vaccine regardless of induction therapy.
- If the patient undergoes transplantation between the first and second doses, provide the second dose at 1 month after transplant. Additional doses are not recommended.
- In patients undergoing active treatment for acute rejection, vaccination can be deferred for a 1-month period.
- Avoid giving vaccine for at least 3 months after rituximab for improved efficacy
- If a patient has had COVID-19 before, wait 90 days from diagnosis and symptom recovery before giving COVID-19 vaccine.
- Since there are no vaccine coadministration studies, avoid giving other vaccines within 2 weeks of the COVID-19 vaccine dose.
- Vaccine should not be given to patients that have had a known anaphylactic reaction to medication (this is currently under review)
- Since efficacy is expected to be lower than the general population, it is strongly recommended that patients continue to practice infection control measures. In addition, household contacts of the transplant recipient should also be vaccinated when possible.

### **When will the vaccine be available for transplant patients?**

In Canada, the priority groups are currently long-term care residents/workers, healthcare workers, and indigenous populations. When there is sufficient vaccine supply, other groups will also be identified and eventually the vaccine will be rolled out to the general population. Thus, it may likely be March or April 2021 when vaccination can be given to transplant patients. At that time, additional vaccines may be authorized



and we may also have additional information about adverse event profiles. It is recognized that transplant patients may also be working/residing in long term care and/or be health care workers. Thus, vaccine will be available for these groups sooner.

### **What about pediatric transplant patients?**

The vaccine is currently not approved for children under 16 years of age, but once approved, we expect similar recommendations to apply to pediatric transplant recipients.

### **What are the national and international recommendations?**

The CDC Advisory Committee on Immunization Practices (ACIP; U.S.) and the Joint Committee on Vaccination and Immunisation (JCVI; U.K.) has stated that vaccine can be given to immunocompromised population when it becomes available. The JCVI has listed patients with a transplant as being a prioritized vulnerable population. The AST (American Society of Transplantation) and ISHLT (International Society for Heart and Lung Transplantation) have also recommended COVID-19 vaccine to be given to transplant patients when available. Health Canada and FDA have not contraindicated the vaccine for immunocompromised although have stated that there are no data on efficacy and adverse events in this population.

The National Advisory Committee on Immunization in Canada has not recommended vaccination for the immunocompromised population as a whole due to lack of efficacy and safety data in this population. However, they have stated that vaccination may be given on a case-by-case basis after considering the risk vs. benefits and letting individuals know that data on efficacy and safety are lacking. Efficacy may be lower in the immunosuppressed state and immunocompromised patients should continue to practice infection control measures against COVID-19.

### **Summary:**

Given that: (a) COVID can cause serious illness in a transplant recipient, (b) transplant recipients often have comorbidities, (c) the mechanism of action of vaccine is specific, and (d) transplantation is not a contraindication to COVID vaccine according to Health Canada, we recommend that vaccine may be given to the pre- and post-transplant patient population when it is available to them. Based on expert opinion, we recommend that the potential benefits of vaccine outweigh any theoretical risks or concerns about immunogenicity. Transplant patients should be made aware of the lack of safety and efficacy data and encouraged to report any adverse events.

### **Disclaimer:**

The guidance provided is not meant to replace clinical judgement. The field is also rapidly evolving and as such the guidance will likely change over time. Any clinical decisions should be made in consideration of the latest available information.

### **Endorsement:**

These guidelines were produced by the UHN Ajmera Transplant Center and endorsed by the Canadian Society of Transplantation.



## REFERENCES:

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