

# 2024

## Pre-Transplant Vaccination Provincial Guidelines



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# Provincial Clinical Guidelines for Vaccination in Pre-Transplant Candidates

## Focus

Vaccine-preventable infections are occurring at epidemic rates, both nationally and internationally. At the same time, rates of vaccine hesitancy and refusal are increasing, leading to decreased herd immunity. For immunocompromised transplant recipients, this can pose considerable risk and infections can lead to significant morbidity and mortality.

In order to prioritize immunizations and avoid vaccine-preventable diseases in immunocompromised organ transplant recipients, the organ transplant programs at SPH, VGH, and BCCH have detailed which vaccines are required or recommended prior to listing a candidate on the active organ transplant waitlist (pre-transplant).

Provincial pre-transplant vaccination guidelines have been developed that outline the processes for:

- a. Pre-transplant vaccination prior to being waitlisted for transplant
- b. Pre-transplant vaccination in already-waitlisted candidates who are not vaccinated
- c. Medical exemptions and individual risk assessment when required vaccination is declined
- d. Pre-transplant vaccination in pediatric candidates

Vaccine compliance monitoring and patient support will be needed to support these guidelines. The guidelines also provide approaches for health care providers to increase vaccine uptake in candidates who may be vaccine-hesitant.

## Site Applicability

The Provincial Clinical Guidelines are applied by organ transplant programs for pre-transplant candidates:

- PHSA – pediatric heart and kidney at BC Children’s Hospital
- VCH – adult liver, lung, kidney, pancreas and pancreas islet at Vancouver General Hospital
- PHC – adult heart and kidney at St. Paul’s Hospital

## Practice Level

These guidelines apply to transplant program clinicians and allied health care professionals who are responsible for assessing candidates for organ transplantation. One of the many steps in the assessment process includes advising candidates which vaccines are required or recommended, including the vaccines’ clinical value, rationale and goals. For required vaccinations, steps will need to be taken to confirm that the vaccinations have been administered prior to confirming the candidate’s waitlist status or receiving an organ transplant.

## Need to Know

### Goals for pre-transplant vaccination

The primary goal of requiring candidates to be vaccinated before transplant is to optimize transplantation success by:

- Promoting individual autonomy by ensuring informed decision making
- Optimizing patient care and ensuring candidates are supported in their informed decision making
- Decreasing pre-transplant morbidity and mortality
- Enabling candidates to develop sufficient antibodies before transplantation and becoming immunocompromised due to the required post-transplant medications
- Decreasing post-transplant morbidity (hospitalization) and mortality

## Guideline

Each organ group has identified vaccines that are either **required (=R)** or **recommended (=r)** prior to listing and/or prior to transplant (pre-transplant). The pre-transplant vaccines by specific transplant program are outlined in Table 1.

### Definitions:

#### Recommended

The candidate is informed of the clinical value, rationale and goals of pre-transplant vaccination and is directed to receive it within a certain time period before determining their waitlist status. After the directed time period, the transplant program may confirm whether vaccination has been completed, but completing the vaccination is not a required condition to be met in order to determine their waitlist status.

#### Required

The candidate is informed of the clinical value, rationale and goals of pre-transplant vaccination and is directed to receive it within a certain time period AND is advised that completing the vaccination is a required condition that must be met in order to determine their waitlist status. After the directed time period, the transplant program will confirm whether vaccination has been completed. If the required vaccination is not completed, the transplant program will review and take additional steps before determining the candidate's waitlist status.

**Table 1:** Identified vaccines that are either required (=R) or recommended (=r) prior to listing to the transplant waitlist by organ transplant program.

Vaccine	Publicly Funded in B.C.	Heart	Lung	Liver	Kidney	Pancreas	Islet	Pediatric*
Influenza	Yes	R	R	r	R	R	R	R
COVID-19	Yes	R	R	r	R	R	R	R
Hepatitis B	Yes	R	R	r	R	R	R	R
Hepatitis A	No for non-liver patients <sup>a</sup> (cost: \$60 - \$80 x 2)			r	r	r	R	R for liver
								r for other organs
Tetanus (Td) or Tetanus-Diphtheria-Pertussis (Tdap)	Yes <sup>b</sup>	R	R	r	R	R	R	R
Inactivated Polio vaccine	Yes			R	R	R	R	R
<i>H influenza</i> type B	Yes		R	R	R	R	R	R
Pneumococcal polysaccharide	Pneumovax 23 (polysaccharide): Yes	R	R	R	R	R	R	R For 2 years old and up
Pneumococcal conjugate	Prevnar 13: yes for pediatrics and some older populations <sup>c</sup> (cost: \$125 - \$145) Prevnar 20 (preferred if can afford): no <sup>c</sup> (cost: \$130 - \$160)	r	r	r	r	r	r	R
Human papilloma virus (HPV) – female <45	HPV9 (Gardasil 9): Publicly-funded for people <19 yo and some populations <26 yo <sup>d</sup> (cost: \$200 x 2 or 3)	r						R <sup>e</sup>
Meningococcal ACWY	Yes	R	R	r	r <sup>**</sup>	R	R	R
Meningococcal B	No (cost: \$160 x 2 <sup>f</sup> )							
Measles, mumps and rubella (MMR) – live vaccine	Yes	R	R	r	R	R	R	R
Varicella – live vaccine	Yes	R	R	r	R	R	R	R
Shingles	No <sup>g</sup> (cost: approx. \$160 x 2)	r	r				r	Not Recommended

\* [Pediatric specific vaccination guidelines](#) (rotavirus vaccine is required but for infants < 8 months of age only)

\*\* Required if expecting the use of eculizumab

<sup>a</sup> There are several other publicly-funded indications for hepatitis A vaccine, including Indigenous persons 6 months – 18 years of age. See the [BC Immunization Manual, Part 4, Hepatitis A Vaccine: Indications](#)

<sup>b</sup> For most adults, only Td vaccine is publicly-funded. Tdap is publicly funded for pregnant people, previously unimmunized clients initiating their vaccine series, and clients born in 1989 or later who missed their adolescent Tdap dose in Grade 9.

<sup>c</sup> Pevnar<sup>®</sup>13 is also publicly funded for children < 5 years, and 5 – 18 years of age at high risk due to asplenia, HSCT recipient, HIV infection, malignant neoplasm, and adults at high risk due to HSCT recipient or HIV infection. If Pevnar<sup>®</sup>20 is provided (in lieu of Pevnar<sup>®</sup>13), the pneumococcal polysaccharide vaccine (PPV23) is not necessary.

<sup>d</sup> HPV9 is also publicly funded for men <26 years of age who have sex with men, people <26 years of age who are two-spirit, transgender or non-binary, and people <26 years of age who are living with HIV infection.

<sup>e</sup> HPV9 is routinely given in Grade 6, however it can be given as early as 9 years of age.

<sup>f</sup> For infants 2 – 5 months of age, three doses of meningococcal B vaccine are recommended.

<sup>g</sup> Shingrix<sup>®</sup> shingles vaccine is publicly funded for [First Nations Elders who are ≥ 60 years of age](#).

## 1. For **Required Vaccination Pre-Transplant:**

- Candidates who are not vaccinated at the time of their assessment for transplant will continue their evaluation process. However, candidates will be advised by the transplant coordinator and/or transplant physician that vaccination is strongly and uniformly advised pre-transplant.
- Candidates who decline vaccination should be provided with vaccine education (see Patient Support section below) by the transplant team regarding vaccine options, vaccine safety and medical risks of proceeding with transplant without the required vaccines. This will be clearly documented in the patient's chart.
- Following at least two best-effort attempts to address vaccine hesitancy, the individual transplant program will deliberate the risk (**Risk Assessment**) to patient health from proceeding to transplant with incomplete vaccination which will be weighed against the risk from deferring a transplant. The deliberation will consider the particular risks unique to that patient. The risk assessment will determine if the candidate will be added to the transplant list (if not listed yet) or taken off the transplant list (if already on the active list). The risk assessment will be discussed with the patient and the discussion clearly documented in the patient chart.
- High status presentation (critically ill patients) who meet the organ group's specific high status criteria and have been deemed suitable for transplant are required to be fully vaccinated, or willing to receive required vaccinations. If a critically ill patient cannot engage in consent, their substitute decision maker can consent on their behalf. If the patient and/or substitute decision maker still refuses vaccination despite best-effort attempts to address vaccine hesitancy, then the individual transplant program will proceed with a **Risk Assessment**, as described above.

**Medical Exemptions** to required vaccines may be considered for medical reasons, for example; a documented allergy to vaccinations, a documented significant adverse reaction to prior doses, etc.

## 2. Recommendations for pediatric transplant candidates

- a) The pediatric transplant program will work with pediatric candidates and their families to ensure all required vaccinations are completed prior to transplant.
- b) If a pediatric candidate or family refuses vaccination, special consideration should be given in the pediatric context in which a duty to protect also exists and where pediatric candidates may not be in control of their vaccination status. In such circumstances, the transplant team will consult with the infectious disease physician at the Family Immunization Clinic (FIC) and ethics services at BCCH. In concert, they will work with families to inform them of the increased risks to immunocompromised patients and strongly encourage and recommend vaccination before transplantation.

## Pre-transplant Vaccination Assessment

As part of the pre-transplant assessment and clinical work-up, clinic staff will determine the candidate's vaccine status of all vaccinations and document results in the patient chart. Each program will ensure the health care professional provides support and follow-up to the candidate to determine if required vaccines have been received, are still pending, or are being refused.

## Patient Support

### Addressing vaccine hesitancy in pre-transplant candidates

- a) In the event a candidate declines receive required vaccinations after the directed vaccination time frame, the transplant team will first contact the candidate to discuss and address potential vaccine hesitancy.
- b) The individual transplant program clinic team members will contact the candidate, inform them that their vaccine status for one or more of the required vaccines is recorded as unvaccinated, and have a conversation with them regarding their vaccine hesitancy. There are many reasons why candidates may be hesitant to receive vaccines, such as safety concerns, culturally unsafe care and trauma from previous healthcare experiences. However, most people are willing to be vaccinated as long as their concerns are addressed. Healthcare providers, such as transplant care teams, are trusted messengers when it comes to vaccines. The [Vaccine Hesitancy Guide website](#) can help team members address specific candidate concerns.
- c) Identify if there are any cultural/racial disparities or barriers to vaccination and develop mitigation strategies for these candidates.
- d) If the candidate continues to decline vaccination, they should be informed that this will affect their transplant eligibility and that they may not be added to the waitlist (or if already on the waitlist, may be removed from the active list). The candidate will continue to be followed by the transplant program (refer to Section on Required Vaccination).

## Evaluation

Clinical guidelines for pre-transplant vaccination will be reviewed regularly (e.g., annually) by each organ transplant program, or on an as-needed basis.

## Pre-Transplant Programs Fax Contacts

**(for vaccine providers to fax any notifications/documentations to the Pre-Transplant Programs)**

Vancouver General Hospital Solid Organ Transplant Pre Kidney Clinic	604-875-5236
Vancouver General Hospital Solid Organ Transplant Pre Liver Clinic	604-642-8815
Vancouver General Hospital Solid Organ Transplant Pre Lung Clinic	604-642-8814
Vancouver General Hospital Solid Organ Transplant Pre Islets Cells Clinic	604-642-8824
St. Paul's Hospital Heart Transplant Program	604-675-2658
St. Paul's Hospital Pre Kidney Transplant Clinic	604-806-8902

## References

1. [B.C. COVID Therapeutics Committee](#)
2. Boyarsky BJ, Werbel WA, Avery RK, et al. Immunogenicity of a Single Dose of SARS-CoV-2 Messenger RNA Vaccine in Solid Organ Transplant Recipients. *Jama*. 2021;325(17). doi:10.1001/jama.2021.438