# Pneumococcal vaccine: Recommended schedule for children aged 2 months to less than 18 years of age

**General notes:**

* The National Advisory Committee on Immunization (NACI) continues to recommend that all routine infant immunization programs in Canada include a conjugate pneumococcal vaccine.
* PNEU-C-20 should be used for infants and children at increased risk of invasive pneumococcal disease (IPD) who are initiating their pneumococcal vaccine series, and for series completion for those who have started their vaccine series with PNEU-C-13 or PNEU-C-15 as it provides protection for a larger number of serotypes compared to other conjugate vaccines.
* The dosage for all formulations is 0.5 mL. Conjugate vaccines should be administered intramuscularly (IM). All pneumococcal vaccines may be administered concomitantly with other vaccines, except for PNEU-P-23. No conjugate pneumococcal vaccine should be given concomitantly with PNEU-P-23.
* There is no evidence to suggest a risk to the fetus or to the pregnancy from non-live vaccines and thus pregnant and breastfeeding persons can receive pneumococcal vaccines if indicated.
* In First Nations, Metis, or Inuit communities, autonomous decisions should be made by Indigenous Peoples with the support of healthcare and public health partners in accordance with the [United Nations Declaration on the Rights of Indigenous Peoples.](https://www.justice.gc.ca/eng/declaration/fact-fiche.html)

Table 1 provides guidance on the administration of PNEU-C-15 or PNEU-C-20 based on the child’s age, their risk status, and their previous pneumococcal vaccination history. If a child requires more than one dose, NACI recommends a minimum interval of 8 weeks between doses of pneumococcal conjugate vaccine.

**Table 1: Pneumococcal Vaccine for children aged 2 months to less than 18 years of age by risk status**

| **Population Group and risk status** | **Prior PNEU-C-13 vaccines** | **2 months to < 7 months of age****(follow the relevant provincial or territorial schedule)** | **7 months to < 12 months of age** | **12 months to < 2 years of age** | **2 years to < 5 years of age** | **5 years to < 18 years of age** |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| No additional risk factors for IPD  | None | For a 3-dose schedule, PNEU-C-15, or PNEU-C-20 a at 2, 4 and 12 to 15 months of age **OR**For a 4-dose schedule, PNEU-C-15, or PNEU-C-20 a at 2, 4 and 6 months followed by a dose at 12 to 15 months of age  | 2 doses of PNEU-C-15 or PNEU-C-20 a + 1 dose at 12 to 15 months of age | 2 doses of PNEU-C-15 or PNEU-C-20 a  |  1 dose of PNEU-C-15 or PNEU-C-20 a  | NA |
| 1 dose of PNEU-C-13 | For a 3-dose schedule, 1 dose of PNEU-C-15 or PNEU-C-20 a + 1 dose at 12 to 15 months of age**OR**For a 4-dose schedule, 2 doses of PNEU-C-15 or PNEU-C-20 a + 1 dose at 12 to 15 months of age | 1 dose of PNEU-C-15 or PNEU-C-20 a + 1 dose at 12 to 15 months of age | 2 doses of PNEU-C-15 or PNEU-C-20a if PNEU-C-13 dose was given at less than 12 months of age**OR**1 dose of PNEU-C-15 or PNEU-C-20a if PNEU-C-13 dose was given at 12 months of age or older | 1 dose of PNEU-C-15 or PNEU-C-20 ain case of incomplete vaccination schedule | NA |
| 2 doses of PNEU-C-13 | For a 3-dose schedule, 1 dose of PNEU-C-15 or PNEU-C-20 a at 12 to 15 months of age**OR**For a 4-dose schedule, 1 dose of PNEU-C-15 or PNEU-C-20 a + 1 dose at 12 to 15 months of age | 1 dose of PNEU-C-15 or PNEU-C-20 a at 12 to 15 months of age | 1 dose of PNEU-C-15 or PNEU-C-20a if all PNEU-C-13 doses were given at less than 12 months of age **OR**1 dose of PNEU-C-13 was given at less than 12 months and 1 dose of PNEU-C-13 given at 12 months of age or older | NA |
| PNEU-C-13 full series  | NA | NA | NA | NA | NA |
|  |  |  |  |  |  |  |
| Additional risk conditions for IPD b | None | 3 doses of PNEU-C-20 at 2, 4 and 6 months + 1 dose of PNEU-C-20 at 12 to 15 months of age  | 2 doses of PNEU-C-20 + 1 dose of PNEU-C-20 at 12 to 15 months of age | 2 doses of PNEU-C-20 | 1 dose of PNEU-C-20 | 1 dose of PNEU-C-20 |
| 1 dose of PNEU-C-13 | 2 doses of PNEU-C-20 + 1 dose of PNEU-C-20 at 12 to 15 months of age | 1 dose of PNEU-C-20 + 1 dose of PNEU-C-20 at 12 to 15 months of age | 2 doses of PNEU-C-20 if dose of PNEU-C-13 received at less than 12 months of age OR1 dose of PNEU-C-20 if dose of PNEU-C-13 was received at 12 months of age or older | 1 dose of PNEU-C-20 | 1 dose of PNEU-C-20 |
| 2 doses of PNEU-C-13 | 1 dose of PNEU-C-20 + 1 dose of PNEU-C-20 at 12 to 15 months of age | 1 dose of PNEU-C-20 at 12 to 15 months of age | 1 dose of PNEU-C-20 | 1 dose of PNEU-C-20 | 1 dose of PNEU-C-20 |
| 3 doses of PNEU-C-13  |  1 dose of PNEU-C-20 |  1 dose of PNEU-C-20 | 1 dose of PNEU-C-20 | 1 dose of PNEU-C-20  | 1 dose of PNEU-C-20 |
| PNEU-C-13 and PNEU-P-23 b |  1 dose of PNEU-C-20 |  1 dose of PNEU-C-20 | 1 dose of PNEU-C-20  | 1 dose of PNEU-C-20  | 1 dose of PNEU-C-20  |

**a. PNEU-C-13 only or a mixed PNEU-C-10/PNEU-C-13 schedule can be used when PNEU-C-15 or PNEU-C-20 are unavailable.**

**b. For children at increased risk of IPD who have previously completed their recommended schedule with PNEU-C-13, 1 dose of PNEU-C-20 should be provided at a minimum interval of 8 weeks since the last dose of PNEU-C-13 or at least 1 year since a dose of PNEU-P-23, independent of the number of previously received doses of PNEU-P-23. Following PNEU-C-20 vaccination, no further PNEU-P-23 or PNEU-C-20 doses are needed.**

**Table 2: Risk conditions resulting in increased risk of IPD**

|  |
| --- |
| **Medical Risk Conditions:*** Chronic cerebrospinal fluid (CSF) leak
* Cochlear implants, including those who are to receive implants. The highest risk is in the weeks following implant. It is best to administer prior to implant but surgery should not be delayed to administer vaccine. Vaccine should be given as soon as possible.
* Chronic kidney disease, particularly those with nephrotic syndrome, on dialysis, or with renal transplant
* Chronic liver disease, including hepatic cirrhosis and biliary atresia
* Chronic neurologic condition that may impair clearance of oral secretions
* Functional or anatomic asplenia (including sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, or splenic dysfunction)
* Diabetes mellitus
* Chronic heart disease (including congenital heart disease and cyanotic heart disease)
* Chronic lung disease, including asthma requiring acute medical care in the preceding 12 months
* Congenital immunodeficiencies involving any part of the immune system, including B-lymphocyte (humoral) immunity, T-lymphocyte (cell) mediated immunity, complement system (e.g. properdin, or factor D deficiencies)
* Immunocompromising therapy, including use of long-term corticosteroids, chemotherapy, radiation therapy, and post-organ transplant therapy
* HIV infection
* Hematopoietic stem cell transplant (recipient)a see separate recommendation
* Malignant neoplasms, including leukemia and lymphoma
* Solid organ transplant

**Environmental or Living Conditions for Individuals:*** Who live in communities or settings experiencing sustained high IPD rates
* Who are underhoused or experiencing houselessness
* Who are in residential care for children with complex medical needs
 |

1. NACI recommends that pneumococcal conjugate vaccine PNEU-C-20 should be offered to children less than 18 years of age who received a hematopoietic stem cell transplant (HSCT) after consultation with transplant specialist. A primary series of 3 doses of PNEU-C-20 starting 3 to 9 months after transplant should be administered at least 4 weeks apart, followed by an additional dose of PNEU-C-20 12 to 18 months post-transplant (6 to 12 months after the last dose of PNEU-C-20). The recommended timing of PNEU-C-20 for HSCT recipients should be determined in consultation with the recipient’s transplant specialist.

**Abbreviations:**
PNEU-C-13: pneumococcal conjugate 13-valent vaccine

PNEU-C-15: pneumococcal conjugate 15-valent vaccine

PNEU-C-20: pneumococcal conjugate 20-valent vaccine
PNEU-P-23: pneumococcal polysaccharide 23-valent vaccine (indicated for 24 months and older)