



Special Edition

Vaccine Confidence InfoBulletin

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This Special Edition of the Vaccine Confidence InfoBulletin aims to provide you with a summary of the recommendations of the National Advisory Committee on Immunization (NACI) on the use of Moderna Spikevax™ COVID-19 vaccine in children 6 months to 5 years of age and includes practical guidance and considerations for vaccine administration in younger children.

Moderna Spikevax™ COVID-19 vaccine in children 6 months to 5 years of age

NACI guidance summary

On July 14, 2022, Health Canada authorized the Moderna Spikevax™ COVID-19 vaccine for those aged 6 months to 5 years of age. On the same day, NACI released a statement providing recommendations for its use. Below is a summary of the recommendations released by NACI.

NACI recommends that a complete 2-dose primary series of the Moderna Spikevax™ COVID-19 vaccine (25 mcg) may be offered to children 6 months to 5 years of age who do not have contraindications to the vaccine, with a dosing interval of at least 8 weeks between the first and second dose (discretionary NACI recommendation).

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NACI recommends that children 6 months to 5 years of age who are moderately to severely immunocompromised may be immunized with a primary series of three doses of the Moderna Spikevax™ (25 mcg) vaccine, using an interval of 4 to 8 weeks between each dose (discretionary NACI recommendation).

At this time, NACI strongly recommends that the Moderna Spikevax™ (25 mcg) COVID-19 vaccine primary series for children 6 months to 5 years of age should not routinely be given concurrently (i.e., same day) with other vaccines (live or non-live). (Strong NACI recommendation.)

- As this is a newly authorized COVID-19 vaccine in this age group, NACI recommends that Moderna Spikevax™ (25 mcg) COVID-19 vaccine should be given 14 days before or after a different vaccine. This will help to determine if a potential side effect is due to Moderna Spikevax™ (25 mcg) COVID-19 vaccine or a different vaccine. A shorter interval between the administration of Moderna Spikevax™ (25 mcg) vaccine and a different vaccine may be warranted in some circumstances at the discretion of a health care provider.

Moderna Spikevax™ (25 mcg) may be offered to children 5 years of age as an alternative to Pfizer-BioNTech Comirnaty® (10 mcg); however, the use of Pfizer-BioNTech Comirnaty® (10 mcg) is preferred to Moderna Spikevax™ (25 mcg). (Discretionary NACI recommendation.)

Children who have received Moderna Spikevax™ (25 mcg) for a previous dose and turn 6 prior to completing their primary series are recommended to receive Moderna Spikevax™ (50 mcg) to complete their primary series. If the primary series was completed with Moderna Spikevax™ (25 mcg) or with Pfizer-BioNTech Comirnaty® (10 mcg), the dose should be considered valid and the series complete (discretionary NACI Recommendation).



Key resources

- Consult the [NACI statement](#) to read the full guidance.
- Consult the [NACI summary statement](#) for a short overview.
- See the [Moderna Spikevax™ product monograph](#) for more product-specific information.
- For more information on pediatric COVID-19 vaccination recommendations, see the [Canadian Immunization Guide \(CIG\) chapter on COVID-19 vaccines and children](#).

[COVID-19 Vaccine Communications Toolkit: Moderna Spikevax™ COVID-19 vaccine in children 6 months to 5 years of age](#)



This toolkit contains key messages and shareable social media content on the use of the Moderna Spikevax™ COVID-19 vaccine for children 6 months to 5 years of age. Content can be re-purposed, re-posted, or serve as an information basis for patients and caregivers to learn more about the vaccine in this very young population.

Practical vaccine administration information

Key reminders prior to and for vaccination

- ✓ Obtain consent from the client or parent or legal guardian
- ✓ Assess for contraindications and precautions
- ✓ Discuss frequently occurring minor adverse events and potential rare severe adverse events
- ✓ Provide an opportunity for questions
- ✓ Hand hygiene should be performed before vaccine preparation, between vaccine recipients, and whenever the hands are soiled
- ✓ Glove use during immunization is not routinely recommended unless the skin is not intact - gloves are worn, they should be changed between vaccine recipients
- ✓ Before injection, the skin should be cleansed with a suitable antiseptic such as an alcohol swab and allowed to dry
- ✓ Aspiration is not recommended, not aspirating has been shown to reduce pain at the vaccination site [1]

Needle selection

Needle selection is important to reach the appropriate tissue site, optimize immune response and reduce the risk of site reactions [1]. The selection of the right needle should be based on the route of administration, the vaccine recipient's age and size of muscle mass, and the viscosity of the vaccine or passive immunizing agent [1].

Filter needles are not recommended for vaccine administration as they may filter out active ingredients such as adjuvants [1].

Table 1: Needle selection guidelines

Route of administration	Needle gauge	Age of vaccine recipient	Site of injection	Needle length
Intramuscular (IM) 90° angle	22-25	Infants (1-12 months)	Anterolateral thigh (vastus lateralis)	2.2 cm- 2.5 cm ($\frac{7}{8}$ inch - 1 inch)
		Young children (>12 months-3 years)	Deltoid muscle	1.6 cm–2.5 cm ($\frac{5}{8}$ inch – 1 inch)
			Anterolateral thigh (vastus lateralis)	2.5 cm- 3.2 cm (1 inch - 1 $\frac{1}{4}$ inch)
		Children (>3 years- 12 years)	Deltoid muscle	1.6 cm–2.5 cm ($\frac{5}{8}$ inch – 1 inch)
			Anterolateral thigh (vastus lateralis)	2.5 cm- 3.2 cm (1 inch - 1 $\frac{1}{4}$ inch)
			Anterolateral thigh (vastus lateralis)	2.5 cm- 3.2 cm (1 inch - 1 $\frac{1}{4}$ inch)

Table 1. Needle Selection Guidelines. CIG: Adapted from Vaccine administration practices [1].

For a more complete guide to needle selection, that includes adults, consult the [vaccine administration practices section of the CIG](#).

Site selection

For those **less than 12 months of age**, choose the:

- anterolateral thigh muscle (vastus lateralis) [1].

See figure 1.

For those **12 months to 18 years of age**, choose either the:

- anterolateral thigh muscle (vastus lateralis); or,
- deltoid muscle (if there is sufficient muscle) [1].

See figures 1 and 2.

The deltoid is often selected as the injection site for toddlers and older children as temporary muscle pain post-vaccination in the anterolateral thigh muscle may affect ambulation [1].

For **adults**, choose either the:

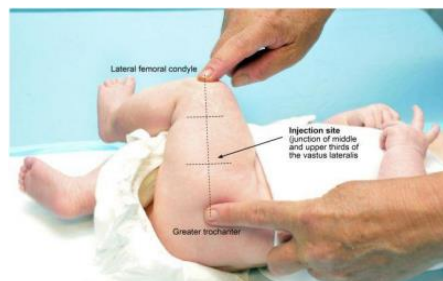
- deltoid muscle; or,
- anterolateral thigh (vastus lateralis) if there is insufficient muscle in the deltoid [1].

See figure 1 and 2.

Figure 1: Anterolateral thigh muscle (vastus lateralis) landmarking

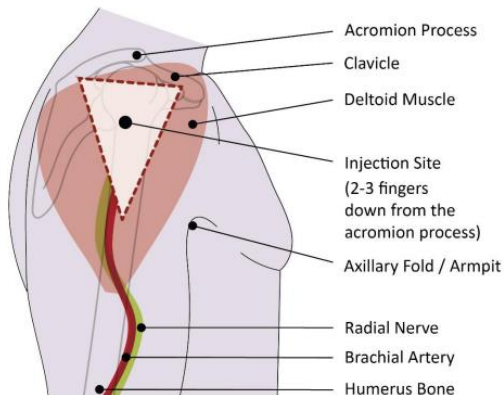


Adapted from the Government of Australia Department of Health: The Australian Immunisation Handbook [9]. © 2022 Commonwealth of Australia as represented by the Department of Health.



Adapted from the Yukon Immunization Program: Yukon Immunization Program Manual [3].

Figure 2: Deltoid muscle landmarking



Adapted from Ontario Public Health: Immunization Technique for Intramuscular (IM) Injections – Deltoid Muscle [2]. This document was adapted with the permission of Public Health Ontario. Public Health Ontario assumes no responsibility for the content of any publication resulting from translation/changes/adaptation of PHO documents by third



Key resources

- Watch a [video on how to administer anterolateral thigh muscle \(vastus lateralis\) injections.](#)
- Watch a [video on how to administer deltoid intramuscular injections.](#)

Positioning for vaccination

Ensure the child is in proper position after the vaccine is ready for administration to improve cooperation [2].

For children **under 3 years of age**, holding with or without rocking during vaccination can facilitate pain management and support a positive vaccination experience [1]. Parents or caregivers can hold their child in their lap with a hug-like hold utilizing both arms while exposing the intended vaccination area for ease of access to immunizers [4]. See figure 3 for a diagram of this holding position.

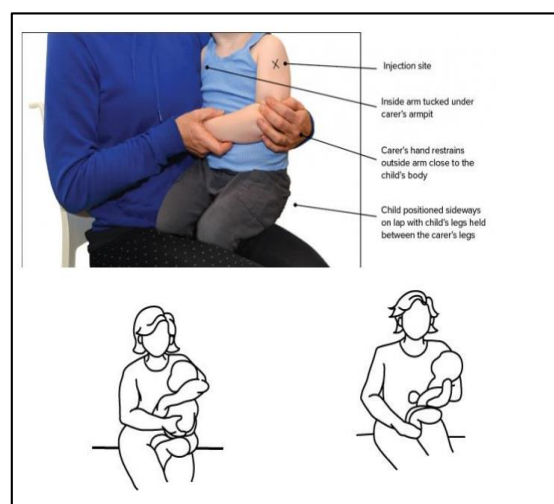
For **children 3 years and above**, sitting up during vaccination can be a useful strategy to reduce pain and anxiety [1]. The parent or caregiver can hold their child on their lap and embrace them while holding the child's legs between their thighs to expose the deltoid muscle for vaccination [3]. See figure 4 for a detailed image of this hold.

Figure 3: Anterolateral thigh muscle (vastus lateralis) landmarking



Adapted from the Yukon Immunization Program: Yukon Immunization Program Manual [3].

Figure 4: Deltoid muscle landmarking



Adapted from the Yukon Immunization Program: Yukon Immunization Program Manual [3].



Key resources

- Consults the [CARD™ Comfort Positions](#) resource for more tips on positioning children for a positive vaccination experience.
- Watch this [2-minute video by AboutKidsHealth on how to reduce vaccination pain in babies through positioning.](#)

Managing pain for a positive vaccination experience

Two in 3 children and 1 in 4 adults are afraid of needles, and up to 1 in 10 people refuse vaccinations because of a fear and/or pain of needles [5]. Pain after immunization is the most common adverse event associated with immunization and early negative experiences with vaccinations can contribute to needle phobia, vaccine hesitancy and health care avoidance behaviours [5], [6]. Ensuring a positive vaccination experience is important to support life-long vaccination habits.

There are several strategies health care providers and caregivers can utilize to manage pain experienced by children during the vaccination process. However, it is important to note that these strategies may vary depending on the child's age and developmental stage.

Strategies for pain management may include:

- discussing vaccination options and unique accommodations that require planning ahead of time to minimize surprises during the vaccination experience [7];
- demonstrating a calm, positive, and attentive demeanor to reassure the child and family [8];
- for infants 2 years of age and younger, soothing strategies include breastfeeding or bottle feeding before, during, and/or after vaccination [1], [7]. Alternatively, you can provide infants a small amount of sugar water one to two minutes before vaccination [1], [7];
- distracting children with videos, toys and music [7], [8]; and,
- when appropriate, using topical local anesthetics that dull the pain at insertion site [7], [8]. Keep in mind that these do not remove the “pressure” sensation of vaccinations and excessive application can lead to [serious adverse events](#) [7], [8].

The CARD™ (C - Comfort, A - Ask, R - Relax, D - Distract) system can be leveraged by health care providers to support their patients in reducing pain, fear, fainting, and vaccination-related symptoms before, during and after vaccination to make the experience a positive one [6].

To learn more about CARD™, watch the webcast [Needle fear, pain and vaccines: Introduction to the CARD™ system as a framework for vaccination delivery \(40 mins\)](#)



Experts Dr. Anna Taddio and Dr. Meghan McMurtry discuss contributors to stress-related reactions during vaccination and evidence-based strategies to improve the vaccine experience for people receiving vaccines and those who support them.



Key resources

- Consult the CIG for more [techniques to decrease immunization injection pain](#).
- Download [tools to help you implement the CARD™ system in your practice](#).
- [Learn more about the CARD™ system](#) and how it can support you and your patients.

Anxiety-related adverse events and anaphylaxis following vaccination

Anxiety-related adverse events following vaccination

Anxiety-related adverse events can occur post-vaccination of children and adults. They may include:

Breath-holding

- No treatment is required beyond reassurance of the child and parents [9]. Note that a brief period of unconsciousness may occur during which breathing resumes [9].

Hyperventilation

- Treatment consists of reassurance and encouraging the individual to breathe slowly and deeply [9].
- Initiating a refocusing strategy such as counting to ten can be helpful [9].

Vasovagal syncope (fainting)

- Usually occurs during or within minutes of vaccination, but is rare in infants and children [9].
- Fainting is managed by placing the individual supine (i.e., lying on their back) position and elevating the lower extremities to support the return of blood to their brain [9].
- If vomiting has occurred or is imminent, it is important to immediately position the infant or child in the recovery position (i.e., lying on one side) to prevent aspiration [9].

Anaphylaxis following vaccination

Pre-screening for anaphylaxis is critically important. A [useful checklist can be found within the vaccine administration practices](#) section of the CIG.

It can be challenging to identify anaphylaxis in infants and children as they cannot describe their symptoms [8]. **Therefore, a sudden loss of consciousness in young children should be presumed to be anaphylaxis [8].**

Other clinical features of anaphylaxis can include:

- increased work of breathing, cough, wheeze, stridor;
- non-specific signs and symptoms such as sudden sleepiness, drooling, inconsolable crying and irritability; and,
- generalized urticaria (hives), vomiting and angioedema [9].

Anaphylaxis management kits should be readily available. Health care providers should familiarize themselves with them and should check them on a regular basis [8].



Key resources

- Consult the [anaphylaxis and other acute reactions following vaccination section of the CIG.](#)

Contact Vaccine Confidence

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Have questions or feedback to share? Email us: vaccination@phac-aspc.gc.ca

Please note that any medical questions should be directed to your local health care provider and any urgent medical questions should be directed to 911 or your local emergency department.

Annex

References

- [1] Public Health Agency of Canada, "Vaccine administration practices: Canadian Immunization Guide," Government of Canada, 03 December 2020. [Online]. Available: <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-8-vaccine-administration-practices.html>. [Accessed June 2022].
- [2] Public Health Ontario, "Immunization Technique for Intramuscular (IM) Injections – Deltoid Muscle," December 2021. [Online]. Available: https://www.publichealthontario.ca/-/media/documents/ncov/vaccines/2021/07/immunization-technique-intramuscular-injections-deltoid.pdf?sc_lang=en. [Accessed 7 July 2022].
- [3] "Yukon Immunization Program Manual," Yukon Immunization Program, April 2020. [Online]. Available: https://yukon.ca/sites/yukon.ca/files/hss/hss-imgs/section_6-_administration_of_biological_products_april_2020.pdf. [Accessed 29 June 2022].
- [4] "Needle fear, pain and vaccines: Introduction to the CARD system as a framework for vaccination delivery," CANVax, 20 April 2022. [Online]. Available: <https://canvax.ca/needle-fear-pain-and-vaccines-introduction-card-system-framework-vaccination-delivery>. [Accessed June 2022].
- [5] I. A. M. C. B. L. M. N. Taddio A, "Managing pain and fear: Playing your CARDS to improve the vaccination experience.," *Can Commun Dis Rep*, vol. 47, no. 1, p. 87–91, January 2021. <https://doi.org/10.14745/ccdr.v47i01a12>.
- [6] "Vaccination pain management for children: Guidance for health care providers," Government of Canada, 18 November 2021. [Online]. Available: <https://www.canada.ca/en/public-health/services/immunization-vaccines/pain-management-children-guidance-health-care-providers.html>. [Accessed 12 July 2022].
- [7] "Pain Management During Immunizations for Children," Immunize Canada, 03 May 2022. [Online]. Available: <https://immunize.ca/pain-management-children>. [Accessed 12 July 2022].
- [8] Government of Canada, "Anaphylaxis and other Acute Reactions following Vaccination: Canadian Immunization Guide," March 2021. [Online]. Available: https://bit.ly/EN-PHAC-CIC-Anaphylaxis_and_other-acute_reactions. [Accessed 7 July 2022].
- [9] "The Australian Immunisation Handbook," Australian Government, 12 June 2018. [Online]. Available: <https://immunisationhandbook.health.gov.au/resources/figures/figure-vastus-lateralis-injection-site-on-the-anterolateral-thigh>. [Accessed 6 July 2022].