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Flu Vaccines for 2026-27 (United States)

Updated August 2026

For the 2026-27 influenza season, US influenza vaccines are all trivalent (two influenza A viruses and one influenza B virus).[1] This chart reviews approved influenza vaccines for the 2026-27 season. It includes approved ages for use, route of administration, dose, cost, and egg and thimerosal content. Current ACIP recommendation is for single-dose, thimerosal-free preparations only.[2] The AAP, ACOG, and WHO continue to support the use of thimerosal as a preservative in multi-dose vials of influenza, including for pregnant patients.[4,7,8] For information about efficacy, administration with other vaccines, use in patients who are immunocompromised or pregnant, and more, see our resource, *Communicating About Flu Vaccination*.

--None of the available flu vaccines for 2026-27 contain latex. Information in table is from product labeling, unless otherwise noted[a]--

Brand Name Manufacturer	Route	Approved Ages for Use	Availability (Cost/dose[b])	Contains Thimerosal?[c]	Dose	Comments
Trivalent inactivated influenza vaccine (IIV3)						
Fluad Seqirus	IM	≥65 years	0.5 mL PFS (~$100)	No	0.5 mL	• A preferred optionfor ≥65 years old.[3,10] • This **adjuvanted vaccine** may be abbreviated **aIIV3**.[5] • May contain trace amounts of neomycin and kanamycin. • Also an option for solid organ transplant recipients ages 18 to 64 years who are taking immunosuppressants.[3,10]
Fluarix GSK	IM	≥6 months	0.5 mL PFS (~$20)	No	0.5 mL	• May contain trace amounts of gentamicin.
Flucelvax Seqirus	IM	≥6 months	0.5 mL PFS (~$60)	No	0.5 mL	• This **cell-cultured** vaccine may be abbreviated **ccIIV3**.[5] • **Egg-free**
FluLaval GSK	IM	≥6 months	0.5 mL PFS (~$20)	No	0.5 mL	None
Fluzone Sanofi Pasteur	IM	≥6 months	0.5 mL PFS (~$20) 5 mL MDV (~$20)	No (PFS) Yes (MDV)	6 to 35 months: • 0.25 mL or 0.5 mL ≥36 months: • 0.5 mL	None
Fluzone High-Dose Sanofi Pasteur	IM	≥65 years	0.5 mL PFS (~$110)	No	0.5 mL	• A preferred option for ≥65 years old.[3,10] • Also an option for solid organ transplant recipients ages 18 to 64 years who are taking immunosuppressants.[3,10] • Contains 60 mcg of each virus strain compared to 15 mcg in standard-dose IM vaccines.[6] • Fluzone **High-Dose** has a higher risk of adverse effects (injection site reactions, myalgia, headache) compared to Fluzone. • This **high-dose** vaccine may be abbreviated **HD-IIV3**.[5]
Trivalent recombinant influenza vaccine (RIV3)						
Flublok Sanofi Pasteur	IM	≥9 years	0.5 mL PFS (~$110)	No	0.5 mL	• A preferred option for ≥65 years old.[3,10] • **Egg-free** • Contains 45 mcg of each virus strain compared to 15 mcg in standard-dose IM vaccines.[6]
Trivalent live-attenuated influenza vaccine (LAIV3)						
FluMist Intranasal Spray MedImmune (an AstraZeneca company)	Intranasal	2 to 49 years	0.2 mL prefilled intranasal sprayer Cost N/A at time of writing.	No	0.1 mL per nostril	• Not recommended for patients who are pregnant, immunocompromised, or with certain medical conditions. ◦ See our resource, *Communicating About Flu Vaccination*, for more on who should NOT receive live intranasal flu vaccine. • Has not been studied in patients with severe asthma or active wheezing. • May contain trace amounts of gentamicin. • FluMist is also available for at-home administration in some states through an online pharmacy.[9]
Trivalent Influenza Vaccine, mRNA						
mFlusiva Moderna	IM	≥50 years	Cost N/A at time of writing.	No	0.38 mL	• Approval for ≥65 years of age was accelerated based on immune response data. Trials for effectiveness are ongoing. • More effective than comparator (Fluarix Quadrivalent)(NNT = 125). • Adverse effects (e.g., injection site reactions, axillary swelling, fatigue) were more common than with the comparator.

Abbreviations: AAP = American Academy of Pediatrics; ACIP = Advisory Committee on Immunization Practices; ACOG = American College of Obstetricians and Gynecologists; GSK = GlaxoSmithKline; IM = intramuscular; MDV = multidose vial; N/A = not available; PFS = pre-filled syringe; WHO = World Health Organization

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Footnotes:

a. Information is from product labeling, unless otherwise noted: Fluad (July 2026); Fluarix (July 2026); Flucelvax (July 2026); FluLaval (July 2026); Fluzone (July 2026); Fluzone High-Dose Northern Hemisphere (July 2026); Flublok Trivalent (July 2026); FluMist (July 2026); mFlusiva (August 2026).

b. Pricing based on one dose at wholesale acquisition cost (WAC).Medication pricing by Elsevier, accessed July 2026.

c. For more information on the safety of thimerosal, see the Children's Hospital of Philadelphia (https://www.chop.edu/vaccine-education-center/vaccine-safety/vaccine-ingredients/thimerosal) and immunize.org (https://www.immunize.org/ask-experts/does-the-thimerosal-in-some-vaccines-pose-a-risk/).

References:

1. FDA. Influenza Vaccine Composition for the 2026-2027 U.S. Influenza Season. March 13, 2026. https://www.fda.gov/vaccines-blood-biologics/vaccines/influenza-vaccine-composition-2026-2027-us-influenza-season. (Accessed July 28, 2026).
2. CDC. ACIP recommendations. Aug 8, 2025. https://www.cdc.gov/acip/vaccine-recommendations/index.html. (Accessed July 28, 2025).
3. American Academy of Family Physicians. Adults 19 and older immunization schedules. 2026. https://www.aafp.org/clinical-insights/immunizations-and-vaccines/immunizations-schedules-resources/adult-immunization-schedules. (Accessed July 28, 2026).
4. Committee on Infectious Diseases. Recommendations for Prevention and Control of Influenza in Children, 2026-2027: Technical Report. Pediatrics. 2026 Aug 10. doi: 10.1542/peds.2026-078779.
5. CDC. Abbreviations of Vaccines and Other Immunizing Agents. July 29, 2025. https://www.cdc.gov/vaccines/hcp/vaccines-us/abbreviations.html?CDC_AAref_Val=https://www.cdc.gov/vaccines/terms/vacc-abbrev.html. (Accessed July 28, 2026).
6. DiazGranados CA, Dunning AJ, Kimmel M, et al. Efficacy of high-dose versus standard-dose influenza vaccine in older adults. N Engl J Med. 2014 Aug 14;371(7):635-45.
7. WHO. Thimerosal. https://www.who.int/teams/health-product-policy-and-standards/standards-and-specifications/norms-and-standards/vaccine-standardization/thiomersal. (Accessed July 28, 2026).
8. ACOG. Vaccine Safety During Pregnancy. https://www.acog.org/womens-health/faqs/vaccine-safety-during-pregnancy. (Accessed July 28, 2026).
9. AstraZeneca. FluMist. Frequently Asked Questions. https://www.flumist.com/faqs. (Accessed July 28, 2026).
10. CDC. ACIP Recommendations Summary. June 10, 2026. https://www.cdc.gov/flu/hcp/vax-summary/acip-recommendations.html. (accessed July 31, 2026)

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Communicating About Flu Vaccination

modified July 2026

The following chart answers frequently asked questions about flu vaccine efficacy, administration with other vaccines, use in patients who are immunocompromised or pregnant, and more. For information on specific influenza vaccine products, see our resource, Flu Vaccines (US) (Canada).

Question	Answer/Pertinent Information

Who should receive a flu vaccine?	• Flu vaccination is recommended for **everyone ≥6 months** without contraindications.[1,2,34-36]
	  ○ Per Canadian guidelines, influenza vaccination is particularly recommended for:[1]
	  ▪ people at high risk of severe disease, flu-related complications or hospitalization.
	  ▪ people capable of transmitting flu to those at high risk.
	  ▪ people who provide essential community services.
	  ▪ people with increased risk of exposure (occupational or recreational) to avian influenza A.
	• For patients who cannot remember if they received this season's flu vaccine, avoid missed opportunities to vaccinate by giving the flu vaccine even if this means giving a second dose to some patients.[3]

Which flu vaccine is preferred?	• Avoid delaying vaccination in order to use a specific "preferred" flu vaccine.[1,4,36] • A higher-dose, adjuvanted, OR recombinant flu vaccine is preferred (if available) for patients ≥65 years old.[1,3,36] • In Canada, there is **no longer a preference** for quadrivalent flu vaccines over trivalent flu vaccines in children.[1]
When are two doses of a flu vaccine needed?	• To provide optimal protection, **children 6 months through eight years** should receive two doses of flu vaccine (separated by at least four weeks) if they have not received at least two doses of flu vaccine (separated by at least four weeks) prior to July 1 of the current year (US) or if they have not previously received the seasonal flu vaccine (Canada).[1,4,34,35] ○ US guidance specifies that for children who should receive two doses, if the child turns nine years old between doses one and two of the vaccine, two doses are still recommended.[4]

When should flu vaccines be given?	• **In the US**, encourage vaccination by the end of October. Generally, avoid starting vaccinations before September, due to the possibility of reduced effectiveness later in the flu season.[4]
	  ○ Consider earlier vaccination in children (especially if they require two doses), and in pregnant patients, especially those in the third trimester and those with additional risk factors (e.g., asthma, heart disease).[4,14,17,31]
	• **In Canada**, start vaccinations as soon as possible based on availability.[1]
	• Don't miss an opportunity to vaccinate due to fears the vaccine's effectiveness will not last throughout the entire flu season.
	  ○ Though delayed vaccination may lead to increased immunity later in the season, it can lead to missed opportunities to vaccinate, and is not recommended.[1,6]
	  ▪ Booster doses are NOT recommended later in the season for patients who receive their vaccine early in the season.[1,3]
	• Continue to vaccinate as long as flu viruses are circulating and unexpired vaccine is available.[1,3]

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Question	Answer/Pertinent Information
Can flu vaccines be given with other vaccines?	• Live-attenuated and inactivated flu vaccines can be given with other vaccines (including COVID-19 vaccines), using separate administration sites (preferably different limbs).[1,2,7] o If two live vaccines (including FluMist) are NOT given on the same day, they should be administered at least four weeks apart.[7] (Canada: Despite the theoretical risk of immune interference (and reduced efficacy), due to lack of data and based on expert opinion, NACI recommends that FluMist can be given together with or at any time before or after any other live-attenuated or inactivated vaccine.[1]) • Data are limited for coadministration of two adjuvanted vaccines (e.g., Fluad, Heplisav-B, Shingrix).[1,4] There are theoretical concerns about more side effects. If a patient is receiving another adjuvanted vaccine, don't delay flu vaccination if an adjuvanted flu vaccine (i.e., Fluad) is the only flu vaccine available.[4]
Can the flu vaccine be given to someone who is acutely ill?	• **Continue to give the flu vaccine to most patients with mild (and moderate in Canada) acute illnesses** to avoid missed opportunities to vaccinate.[1,8] Most acute illness with or without fever (e.g., diarrhea, upper respiratory infection) is not a contraindication to receiving the vaccine.[1,9] • Severe (and moderate in the US) acute illness is a precaution for administering any vaccine.[9,10] Vaccination side effects (e.g., fever, malaise) may make it difficult to assess management of acute illness.[8] In the US, it is recommended that vaccination be deferred in patients with moderate to severe acute illness.[8] In Canada, expert opinion is recommended to assess risks and benefits if there is a high-risk exposure situation or a short window of opportunity for vaccine administration.[10]
Can immuno-compromised patients receive the flu vaccine?	• **Immunocompromised patients** may receive any licensed, recommended, age-appropriate **injectable** flu vaccine.[1,4] o See detailed guidance for the timing of influenza vaccination with specific conditions.[4] o Note that some experts recommend a high-dose or adjuvanted flu vaccine for immunocompromised patients. These vaccines may lead to an improved antibody response compared to standard-dose vaccines in these patients. However, evidence is lacking to show that this antibody response correlates with better protection against flu.[11-13] • In the US, high-dose and adjuvanted flu vaccines are acceptable options for solid organ transplant recipients (18 to 64 years) who are taking immunosuppressants, without a preference over other inactivated or recombinant influenza vaccines.[16,34-36] • Live attenuated influenza vaccine (LAIV) should be **avoided** in immunocompromised patients.[8]
Can pregnant or lactating patients receive the flu vaccine?	• Vaccinate **pregnant patients** (any trimester) with any licensed, recommended, age-appropriate **injectable** flu vaccine.[1,5,14,31,34-36] o Risk of flu and potential complications in pregnant patients and/or the fetus exceeds possible risks associated with flu vaccination.[15] • Vaccinate post-partum patients who did not receive a flu vaccine while pregnant, especially if breastfeeding an infant less than six months old, as these infants are too young to receive a flu vaccine.[5,14,17,31] o Either non-live influenza vaccines or LAIV can be used in breastfeeding patients.[18] ▪ FluMist is an option for breastfeeding patients younger than 50 years (younger than 59 years [Canada]), if there are no other contraindications.[1,19]

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Question	Answer/Pertinent Information
What is the status of thimerosal in flu vaccines?	• Thimerosal (an ethylmercury-containing preservative) is used in some multi-dose influenza vaccine vials (varies by manufacturer). • In June 2025, ACIP voted to no longer recommend the use of thimerosal-containing multi-dose vials of influenza vaccine.[29] However, CDC continues to state that there is no evidence of harm caused by the low amounts of thimerosal in vaccines (except for potentially minor reactions of redness and swelling at the injection site).[32] • The American College of Obstetricians and Gynecologists (ACOG), The American Academy of Pediatrics (AAP), and WHO all continue to support the use of thimerosal as a preservative in multi-dose vials of influenza vaccine (including for pregnant patients).[17,30,31] • Methylmercury is the type of mercury that is found in the food chain (e.g., in some fish) and is toxic to humans at high levels. Ethylmercury (found in thimerosal) is metabolized and excreted much faster compared to methylmercury, making it much less likely to accumulate or cause harm.[33]
Can patients with an egg allergy receive a flu vaccine?	• Patients with a history of severe egg allergy (symptoms more severe than hives [e.g., angioedema, respiratory distress, requiring epinephrine]) do not have higher reaction rates to egg-containing vaccines compared to non-egg allergic patients.[4] • Patients with an egg allergy may receive any age-appropriate flu vaccine, including *FluMist*, without prior flu vaccine skin test and with the full dose, irrespective of a past severe reaction to egg, and in any setting where vaccines are routinely administered.[1,4,34-36] • Refer to our resource, *Flu Vaccines* (US) (Canada), to compare formulations, including egg-free vaccine options.
Should unvaccinated people who had the flu this season still get the flu vaccine?	• Yes. Vaccinate unvaccinated people who have already had the flu during this season. The vaccine might protect against other circulating flu viruses.[3]
How effective are flu vaccines?	• During seasons when flu vaccine virus components are similar to circulating strains, flu vaccination is typically about 40% to 60% effective (e.g., reduces flu illness, doctor visits, reduces laboratory confirmed flu).[20] ○ Influenza vaccination reduces the risk of severe flu, ICU admission, and death, even when the vaccine is not perfectly matched with that particular years' circulating flu strains.[21,22] • Higher dose or adjuvanted flu vaccines seem more effective than standard-dose flu vaccines for patients 65 years and older, especially at reducing flu-related hospitalizations.[23] • Trivalent Fluzone High-Dose provided modestly greater protection against lab-confirmed influenza vs standard-dose trivalent vaccine in patients ≥65 years of age (n=31,989; NNT=200), [Evidence Level A-1].[24]

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Question	Answer/Pertinent Information
How effective are flu vaccines, continued	• Recombinant flu vaccine (e.g., Flublok [US], Supemtek [Canada]) may be slightly more effective in preventing lab-confirmed influenza compared to non-recombinant inactivated flu vaccines in patient ≥50 years of age (N=8,604; NNT=100), [Evidence Level A-1].[25] • *Fluad*, an adjuvanted vaccine, may provide modestly greater protection against lab-confirmed influenza vs non-adjuvanted trivalent vaccine in patients ≥65 years of age (n=227; unable to calculate NNT), [Evidence Level B-2].[27]
Who should NOT receive the LIVE-attenuated flu vaccine (FluMist)?	• AVOID use of the live-attenuated flu vaccine (FluMist) in the following patients: o patients with a history of severe allergic reaction to any flu vaccine or component (excluding egg).[34-36] o children younger than 2 years (and, in the US: 50 years and older).[1,19,36] o anyone who is pregnant.[1,19,34-36] o adults or children with contraindications to live vaccines (e.g., certain chronic diseases, immunosuppression, severely immunosuppressed close contacts).[1,19,34-36] o adults or children who recently took an antiviral (**see row below** "Can the LIVE-attenuated flu vaccine (FluMist) be given to someone who received an antiviral?").[1,19,34-36] o adults or children with asplenia, a non-functional spleen, cochlear implants, or active cerebrospinal fluid leaks (US).[19,34-36] o children between the ages of 2 and 4 years with a history of asthma or wheezing(US).[19.34,35] o severe asthma or medically-attended wheezing within the previous seven days (Canada).[1] o children and adolescents on chronic aspirin or salicylate therapy.[1,19,34,35] If aspirin therapy is needed, aspirin can be started at least four weeks after administering the live-attenuated flu vaccine.[26] o close contacts of patients who are severely immunocompromised (i.e., who requires a protected environment).[1,19,34-36] US guidance recommends avoiding contact with severely immunocompromised patients for 7 days after receiving the live-attenuated flu vaccine.[19.34-36] o significant nasal congestion.[1]
Can the LIVE-attenuated flu vaccine (FluMist) be given to someone who received an antiviral?	• Most advise avoiding FluMist within 48 hours of an antiviral.[1] However, based on antiviral half-lives, it is possible antivirals could interfere with FluMist effectiveness if FluMist is given within the following timeframes BEFORE or AFTER an antiviral:[19] o 48 hours (oseltamivir and zanamivir) o five days (peramivir [approved but not marketed in Canada]) o 17 days (baloxavir) • In Canada, if a patient must take a flu antiviral within two weeks of vaccination with FluMist, it is recommended they be revaccinated with an age-appropriate injectable flu vaccine (or with FluMist based on the timing listing above).[1]

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Question	Answer/Pertinent Information
How can FluMist be given at home (US)?	• In the US, FluMist is available via online pharmacies for administration at home.[28] FluMist is also still available in offices and pharmacies for administration by a healthcare professional. • The patient's insurance may cover the cost of FluMist, but there is also an out-of-pocket shipping and processing fee.[28] • FluMist must be refrigerated and is delivered in temperature-controlled packaging.[28] The used, empty sprayers should be returned using a supplied prepaid return envelope.[28] • Confirmation of administration should be sent through the Immunization Information Systems (IIS).

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Levels of Evidence

In accordance with our goal of providing Evidence-Based information, we are citing the **LEVEL OF EVIDENCE** for the clinical recommendations we publish.

Level	Definition	Study Quality
A	Good-quality patient-oriented evidence.*	1. High-quality randomized controlled trial (RCT) 2. Systematic review (SR)/Meta-analysis of RCTs with consistent findings 3. All-or-none study
B	Inconsistent or limited-quality patient-oriented evidence.*	1. Lower-quality RCT 2. SR/Meta-analysis with low-quality clinical trials or of studies with inconsistent findings 3. Cohort study 4. Case control study
C	Consensus; usual practice; expert opinion; disease-oriented evidence (e.g., physiologic or surrogate endpoints); case series for studies of diagnosis, treatment, prevention, or screening.	

***Outcomes that matter to patients** (e.g., morbidity, mortality, symptom improvement, quality of life).

[Adapted from Ebell MH, Siwek J, Weiss BD, et al. Strength of Recommendation Taxonomy (SORT): a patient-centered approach to grading evidence in the medical literature. Am Fam Physician 2004;69:548-56. https://www.aafp.org/pubs/afp/issues/2004/0201/p548.html.]

References

1. Government of Canada. National Advisory Committee on Immunization (NACI). Statement on seasonal influenza vaccine for 2025-2026. April 30, 2025. https://www.canada.ca/en/public-health/services/publications/vaccines-immunization/national-advisory-committee-immunization-statement-seasonal-influenza-vaccines-2025-2026.html. (Accessed August 5, 2025).
2. CDC. CDC recommends updated 2024-2025 COVID-19 and flu vaccines for fall/winter virus season. June 27, 2024. https://www.cdc.gov/media/releases/2024/s-t0627-vaccine-recommendations.html#:~:text=Updated%202024%2D2025%20COVID%2D19%20Vaccine%20Recommendation,with%20a%20COVID%2D19%20vaccine. (Accessed August 6, 2025).
3. Immunize.org. Ask the experts influenza. Updated November 13, 2024. https://www.immunize.org/ask-experts/topic/influenza/vaccine-recommendations-influenza/. (Accessed August 6, 2025).
4. Grohskopf LA, Blanton LH, Ferdinands JM, et al. Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023–24 Influenza Season. MMWR Recomm Rep 2023;72(No. RR-2):1–25.
5. The American College of Obstetricians and Gynecologists. 2026 Maternal Immunization Schedule. June 10, 2026. https://www.acog.org/clinical-information/maternal-immunization-scheduleAc. (Accessed July 4, 2026).
6. Ray GT, Lewis N, Klein NP, et al. Intraseason Waning of Influenza Vaccine Effectiveness. Clin Infect Dis. 2019 May 2;68(10):1623-1630.
7. CDC. Timing and spacing of immunobiologics. July 24, 2024. https://www.cdc.gov/vaccines/hcp/imz-best-practices/timing-spacing-immunobiologics.html#:~:text=Live%20vaccines%20must%20replicate%20in,discussed%20later%20in%20this%20chapter. (Accessed August 5, 2025).
8. CDC. General best practices for immunization. Best practices guidance. July 25, 2024. https://www.cdc.gov/vaccines/hcp/imz-best-practices/?CDC_AAref_Val=https://www.cdc.gov/vac

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cines/hcp/acip-recs/general-recs/index.html. (Accessed August 5, 2025).
9. Immunize.org. Ask the experts: contraindications and precautions. Updated February 27, 2025. http://www.immunize.org/askexperts/precautions-contraindications.asp. (Accessed August 5, 2025).
10. Government of Canada. Contraindications and precautions: Canadian Immunization Guide. February 2023. https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-2-vaccine-safety/page-3-contraindications-precautions-concerns.html#a4. (Accessed August 6, 2025).
11. American College of Rheumatology. 2022 American College of Rheumatology (ACR) guideline for vaccinations in patients with rheumatic or musculoskeletal diseases: guideline summery. https://www.rheumatology.org/Portals/0/Files/Vaccinations-Guidance-Summary.pdf. (Accessed August 6, 2025).
12. Caldera F, Mercer M, Samson SI, et al. Influenza vaccination in immunocompromised populations: Strategies to improve immunogenicity. Vaccine. 2021 Mar 15;39 Suppl 1:A15-A23.
13. See KC. Vaccination for the Prevention of Infection among Immunocompromised Patients: A Concise Review of Recent Systematic Reviews. Vaccines (Basel). 2022 May 18;10(5):800.
14. CDC. Flu vaccine safety and pregnancy. September 17, 2024. https://www.cdc.gov/flu/vaccine-safety/vaccine-pregnant.html?CDC_AAref_Val=https://www.cdc.gov/flu/highrisk/qa_vacpregnant.htm. (Accessed July 4, 2026).
15. Zerbo O, Modaressi S, Chan B, et al. No association between influenza vaccination during pregnancy and adverse birth outcomes. Vaccine. 2017 May 31;35(24):3186-3190.
16. CDC. CDC updates vaccine recommendations. July 12, 2024. https://www.cdc.gov/ncird/whats-new/cdc-updates-vaccine-recommendations-july-2024.html. (Accessed August 6, 2025).
17. The American College of Obstetricians and Gynecologists. The flu vaccine and pregnancy. Reviewed November 2025. https://www.acog.org/patient-resources/faqs/pregnancy/the-flu-vaccine-and-pregnancy. (Accessed July 4, 2026).
18. Government of Canada. Immunization in pregnancy and breastfeeding: Canadian immunization guide. October 2024. https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-3-vaccination-specific-populations/page-4-immunization-pregnancy-breastfeeding.html#p3c3t2. (Accessed August 6, 2025).
19. CDC. Influenza (flu). Live attenuated influenza vaccine [LAIV] (the nasal spray flu vaccine). May 8, 2026. https://www.cdc.gov/flu/vaccine-types/nasalspray.html?CDC_AAref_Val=https://www.cdc.gov/flu/prevent/nasalspray.htm. (Accessed July 4, 2026).
20. CDC. Benefits of the flu vaccine. August 14, 2024. https://www.cdc.gov/flu-vaccines-work/benefits/?CDC_AAref_Val=https://www.cdc.gov/flu/vaccines-work/vaccineeffect.htm. (Accessed August 6, 2025).
21. Goldberg R. Do influenza vaccines that are mismatched to flu viruses protect children? February 11, 2022. https://www.pulmonologyadvisor.com/home/topics/influenza/do-flu-vaccines-mismatched-to-flu-viruses-protect-children/. (Accessed August 6, 2025).
22. Olson SM, Newhams MM, Halasa NB, et al. Vaccine Effectiveness Against Life-Threatening Influenza Illness in US Children. Clin Infect Dis. 2022 Aug 25;75(2):230-238.
23. CDC. Advisory Committee on Immunization Practices (ACIP). Evidence to recommendations (EtR) framework: higher dose and adjuvanted influenza vaccines for persons aged >65 years. September 5, 2024. https://www.cdc.gov/acip/evidence-to-recommendations/influenza-older-adults-etr.html. (Accessed August 6, 2025).
24. DiazGranados CA, Dunning AJ, Kimmel M, et al. Efficacy of high-dose versus standard-dose influenza vaccine in older adults. N Engl J Med. 2014 Aug 14;371(7):635-45.
25. Dunkle LM, Izikson R, Patriarca P, et al. Efficacy of Recombinant Influenza Vaccine in Adults 50 Years of Age or Older. N Engl J Med. 2017 Jun 22;376(25):2427-2436.
26. Government of Canada. Influenza vaccines: Canadian immunization guide for health professionals. May 2025. https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-10-influenza-vaccine.html. (Accessed August 6, 2025).
27. Domnich A, Arata L, Amicizia D, et al. Effectiveness of MF59-adjuvanted seasonal influenza vaccine in the elderly: A systematic review and meta-analysis. Vaccine. 2017 Jan 23;35(4):513-520.
28. AstraZeneca. FluMist. https://www.flumisthcp.com/at-home-administration. (Accessed August 8, 2025).
29. CDC. ACIP recommendations. July 28, 2025. https://www.cdc.gov/acip/vaccine-recommendations/index.html. (Accessed August 5, 2025).
30. American Academy of Pediatrics. AAP releases 2025-26 flu vaccine recommendations; efforts to increase vaccination 'urgently needed'. July 28, 2025. https://publications.aap.org/aapnews/news/32712/AAP-releases-2025-26-flu-vaccine-recommendations?autologincheck=redirected. (Accessed August 8, 2025).
31. The American College of Obstetricians and Gynecologists. October 2025. https://www.acog.org/clinical-information/physician-faqs/influenza. (Accessed July 4, 2026).
32. CDC. Thimerosal and vaccines. December 19, 2024. https://www.cdc.gov/vaccine-safety/about/thimerosal.html. (Accessed August 16, 2025).

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33. The Children's Hospital of Philadelphia. Vaccine ingredients: thimerosal. June 1, 2020. https://www.chop.edu/vaccine-education-center/vaccine-safety/vaccine-ingredients/thimerosal. (Accessed August 16, 2025).
34. American Academy of Pediatrics. Recommended Child and Adolescent Immunization Schedule for Ages 18 Years and Younger. United States 2026. https://downloads.aap.org/AAP/PDF/AAP-Immunization-Schedule.pdf. (Accessed 7-20-26).
35. American Academy of Family Physicians. Birth through age 18 immunization schedules.. 2026. https://www.aafp.org/clinical-insights/immunizations-and-vaccines/immunizations-schedules-resources/childhood-vaccine-schedules. (Accessed July 20, 2026).
36. American Academy of Family Physicians. Adults 19 and older immunization schedules. 2026. https://www.aafp.org/clinical-insights/immunizations-and-vaccines/immunizations-schedules-resources/adult-immunization-schedules. (Accessed July 20, 2026).

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Pneumococcal Vaccination in Adults

Updated December 2024

Use this algorithm to select the recommended pneumococcal vaccine[g] (including timing of doses) in adults who should be vaccinated. For additional guidance, use CDC's PneumoRecs VaxAdvisor App (mobile or web version). At the time of publication, the dose for all pneumococcal vaccines for adults is one single dose (i.e., repeat doses of the same vaccine are not recommended).[1,2]

Assess whether vaccination is recommended.

Vaccination is recommended in the following patients:[1,2]

- Age ≥50 years old
- Patients between 19 to 49 years old with one of the following medical conditions or risk factors:
  - immunocompromised.[a]
  - immunocompetent with a cerebrospinal fluid (CSF) leak or cochlear implant.
  - immunocompetent at high risk of pneumococcal disease.[b]

Assess the patient's pneumococcal vaccination status.

No prior vaccination	Prior *Pneumovax 23* only	Prior *Prevnar 13* only	Prior *Prevnar 13* (at any age) AND *Pneumovax 23* at <65 years[e,f]	Prior *Prevnar 13* (at any age) AND *Pneumovax 23* at ≥65 years
	≥1 year later	**≥1 year later**	**≥5 years later**	**≥5 years later**
Option A ***Capvaxive*** or ***Prevnar 20***	Option A ***Capvaxive*** or ***Prevnar 20***[d]	***Capvaxive*** or ***Prevnar 20***[e,f]		Shared decision making: ***Capvaxive*** or ***Prevnar 20*** may be given.
OR	**OR**			
Option B ***Vaxneuvance*** followed by[c] ***Pneumovax 23***	Option B ***Vaxneuvance***[d]			

Pneumococcal Vaccination in Adults

Updated December 2024

a. **Immunocompromising conditions** include: chronic kidney failure, congenital or acquired asplenia, congenital or acquired immunodeficiencies (includes B- or T- cell deficiency, complement deficiencies, and phagocytic disorders [excluding chronic granulomatous disease]), generalized malignancy, HIV infection, Hodgkin disease, iatrogenic immunosuppression (diseases requiring treatment with systemic corticosteroids [14 days or longer[2]], other immunosuppressive drugs [e.g., chemotherapy], radiotherapy), leukemia, lymphoma, multiple myeloma, nephrotic syndrome, congenital or acquired asplenia; hemoglobinopathies (including sickle cell disease) and solid organ transplant.[2]

b. **Chronic health conditions increasing pneumococcal disease risk**: alcoholism, chronic liver disease, heart disease (including heart failure, cardiomyopathy), chronic lung disease (including COPD, emphysema, asthma), diabetes, and smoking.[2]

c. If *Vaxneuvance* is given to a patient naive to all pneumococcal vaccines, a dose of *Pneumovax 23* (or [if *Pneumovax 23* is not available] *Capvaxive* or *Prevnar 20*) is recommended at least one year after *Vaxneuvance* or (for patients with immunocompromising conditions,[a] cochlear implant, or CSF leak can be considered at least eight weeks after *Vaxneuvance*).[2]

d. *Capvaxive*, *Prevnar 20*, or *Vaxneuvance* should be given ≥1 year after the last *Pneumovax 23* or *Prevnar 13* dose. Or, given ≥5 years after if the patient has received both *Pneumovax 23* and *Prevnar 13*.[2]

e. Alternatively, for patients with immunocompromising conditions[a] who have had both *Prevnar 13* and two doses [one dose for patients with a cochlear implant or cerebrospinal fluid leak] of *Pneumovax 23*, no additional pneumococcal vaccine can be given. These patients should have their pneumococcal vaccine needs reviewed when they turn 50 years.[2]

f. Patients 19 to 49 years with chronic health conditions who have had both *Prevnar 13* and *Pneumovax 23* do not require further pneumococcal vaccines. These patients should have their pneumococcal vaccine needs reviewed when they turn 50 years.[2]

g. PCV20 = *Prevnar 20*; PCV21 = *Capvaxive*; PCV15 = *Vaxneuvance*; PPSV23 = *Pneumovax 23*; PCV13 = *Prevnar 13*.

References

1. CDC. Pneumococcal vaccine recommendations. October 26, 2024. https://www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/index.html. (Accessed October 26, 2024).
2. CDC. Pneumococcal vaccine timing for adults. October 2024. https://www.cdc.gov/pneumococcal/downloads/vaccine-timing-adults-jobaid.pdf?CDC_AAref_Val=https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf. (Accessed October 27, 2024).

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RSV Vaccines

Updated September 2025

Also see our resources, *RSV Monoclonal Antibodies* and *Preventing RSV*.

	Abrysvo	Arexvy	mResvia
Vaccine type	non-adjuvanted	adjuvanted (with $AS01_E$)	mRNA
Approved for the prevention of RSV for:	• pregnant patients, 32 to 36 weeks gestation (to prevent RSV in newborns via placental transfer of antibodies). • 60 years and older. • 18 to 59 years if at increased risk for LRTD caused by RSV (US only)	• 60 years and older. • 50 to 59 years if at increased risk of LRTD caused by RSV.	• 60 years and older. • 18 to 59 years if at increased risk for LRTD caused by RSV (US only)
Dosing	0.5 mL IM x one dose		
Use in pregnant patients	There is a potential risk of preterm birth with Abrysvo. To avoid this risk, do not administer Abrysvo prior to 32 weeks gestation. Patients at risk of preterm birth were generally excluded from the studies.	There are no data on the administration of Arexvy in pregnant patients.	There are no data on the administration of mResvia in pregnant patients.
Storage	Refrigerate (2°C to 8°C) in the original packaging to protect from light.	Refrigerate (2°C to 8°C) in the original packaging to protect from light.	• Store frozen (-40°C to -15°C). • After thawing, can be refrigerated (2°C to 8°C) for up to 90 days. Do not refreeze. • Once removed from fridge, can be stored at room temperature (8°C to 25°C) for up to 24 hours. • Do not return to fridge once at room temperature.
Reconstitution and stability	Reconstitute with the diluent provided. Use immediately or keep at room temperature (15°C to 30°C) and use within **four hours**.	Reconstitute with the diluent provided. Use immediately, or can be refrigerated or keep at room temperature (up to 25°C) and used within **four hours**.	Thaw in fridge for 100 minutes (160 minutes for 10-syringe carton). **OR** Thaw at room temperature for 40 minutes (80 minutes for 10-syringe carton).
Cost[a]	**Per dose**: • $310 (US) • $250 (Canada)	**Per dose**: • $310 (US) • $255 (Canada)	**Per dose**: • $290 (US) • not yet available (Canada)

Information in the above chart is based on product labeling: **US**: Abrysvo (July 2025), Arexvy (August 2025), mResvia (June 2025); **Canada**: Abrysvo (December 2023), Arexvy (November 2024), mResvia (May 2025).

Abbreviations: IM = intramuscularly; LRTD = lower respiratory tract disease; RSV = respiratory syncytial virus.

Footnote

a. Pricing based on wholesale acquisition cost (WAC). US medication pricing by Elsevier, accessed September 2025.

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Shingles Vaccine (Shingrix): FAQs

Updated February 2026

Question	Pertinent Information
What kind of vaccine is Shingrix?	• Shingrix is an adjuvanted recombinant vaccine.[4,7]
Who can get Shingrix?	• People ≥50 years of age (even those who have already had shingles).[1,6,8] • Patients ≥19 years of age (Canada: ≥18 years of age) who are or will be immunocompromised.[5,8]
Who should not get Shingrix?	Patients should **not** get Shingrix if: • they have had a severe allergic reaction to a component of the vaccine.[1,8] • they currently have shingles (they should wait until the rash disappears to get the vaccine)[1] • they have a moderate-to-severe (Canada: severe) illness.[1,8] • they are pregnant (no data).[1,8]
Should people who previously received Zostavax or the chickenpox (varicella) vaccine receive Shingrix?	• Previous chickenpox (varicella) vaccine: these patients should receive Shingrix, but wait ≥8 weeks after receipt of the chickenpox (varicella) vaccine to give the shingles vaccine.[1,5] • Previous Zostavax vaccine: these patients should receive Shingrix because the efficacy of Zostavax wanes over time.[9]
Should people who have never had chickenpox (varicella) receive the shingles vaccine?	• Yes, because they probably had an asymptomatic case.[1] • If a person does not recall having chickenpox, serologic testing for varicella immunity is not recommended because false negatives are common and it can be a barrier to vaccination.[9] However, if negative serologic evidence is available, follow guidelines for varicella vaccination (or post-exposure prophylaxis for immunocompromised patients [varicella vaccination is contraindicated in most immunocompromised patients]).[5,9]
What is the usual dose of Shingrix?	• The usual dose is two IM doses (0.5 mL each), separated by two to six months.[1,8] • Canada: consider giving the doses 12 months apart to improve adherence (e.g., at the next annual visit, or with the next influenza vaccination).[8]

What should be considered for immunocompromised patients?	• Immunocompromised patients can get the second dose one to two months after the first dose.[5,8] This shorter interval can be used to avoid vaccination during a time of more intense immunosuppression.[5]
	• Timing considerations for specific immunocompromising scenarios:
	  ○ Stem cell transplant: give at least three to 12 months (autologous) or at least six to 12 months (allogenic) post-transplant.[5] Ideally, vaccinate before two months before stopping antiviral therapy.[5]
	  ○ Solid organ transplant: ideally, give pre-transplant. Otherwise, give six to 12 months post-transplant during a time of stability (i.e., no recent rejection and on maintenance immunosuppression).[5]
	  ○ Cancer, autoimmune, or inflammatory conditions: ideally, complete the series ≥14 days pre-treatment.[5,8] Otherwise, give when immunosuppression is least intense, and when autoimmune or inflammatory disease is well-controlled (e.g., not during a flare).[5]
	  ▪ For patients receiving anti-B cell treatment (e.g., rituximab), give ~4 weeks before the next dose.[5]

Can Shingrix be given at the same time as other routine adult vaccines?	• Shingrix can be given with (at a different injection site), or at any time before or after, other inactivated or live vaccines (except the chickenpox [varicella] vaccine).[5,6,8,9] ○ Wait ≥8 weeks after the chickenpox (varicella) vaccine to give Shingrix.[5] • Specifically, coadministration has been studied with Fluarix Quadrivalent, Pneumovax 23, Prevnar 13, Boostrix, and the 2019 COVID-19 vaccine (Moderna).[4,7,14]
Can people taking antivirals receive Shingrix?	• Yes, because it is not a live virus vaccine.[5]
How effective is Shingrix? *Continued...*	**Prevention of Shingles** • In immunocompetent adults 50 to 69 years of age, Shingrix was 97% effective in **preventing shingles**; in adults ≥70 years of age, Shingrix was 91% effective.[1] • In immunocompromised adults, Shingrix was 68% to 91% effective in **preventing shingles**.[1] **Prevention of PHN** • In immunocompetant adults ≥50 years of age, Shingrix was 91% effective in **preventing PHN**; in adults ≥70 years of age, Shingrix was 89% effective.[1] **Dementia** • Before its discontinuation, emerging evidence suggested Zostavax (live virus vaccine) reduced the probability of a dementia diagnosis by 3.5% in the seven years post-vaccination in adults age 79 years at the time of vaccination.[13] Observational data suggests that Shingrix adds 164 additional diagnosis-free days compared to Zostavax.[12]

Shingles Vaccine (Shingrix): FAQs

Updated February 2026

Question	Pertinent Information
How effective is Shingrix, continued	**Cardiovascular Disease** • Cohort data suggests that Shingrix may reduce the relative risk of **acute myocardial infarction** and **hospitalized stroke** by 28% and 43%, respectively.[10]
How long does Shngrix remain effective?	• In immunocompetent adults ≥70 years of age, immunity remains high for at least seven years.[1]
What are some adverse effects of Shingrix?	**Common side effects include:**[1] • Mild to moderate redness, swelling, and pain at the injection site[1,8] • Fatigue, myalgias, headache, fever, shivering, stomach pain, nausea[1,8] **These side effects:** • Are more common in younger people.[1] • Usually resolve in one to three days.[1,8] • Can be treated with ibuprofen or acetaminophen.[1] • Are not a reason not to get the second dose.[1] • Are less painful than the pain of having PHN.[1] + **GBS** has been reported rarely after Shingrix, but causality has not been established.[6] There is a very small risk of GBS after having shingles.[1] + A cohort study reported an increased risk of herpes zoster ophthalmicus (HZO) **recurrence** in Shingrix recipients; consider increased monitoring.[11]
How is Shingrix paid for?	**US** • Medicare Part D will pay for Shingrix.[1] (Most Medicare Advantage [Medicare Part C] plans also include Medicare Part D.[3]) • Coverage varies by Medicaid plan.[1] • Most private insurance plans pay 100% of the cost.[2] • For people without third party coverage, the GSK Patient Assistance Program for Vaccines may cover the cost for people below certain income levels (https://gskpaf.org/gsk/vaccines-patient-assistance/). **Canada** • Coverage varies. Go to the FAQs at https://www.shingrix.ca/en-ca/index.html and choose "Is the cost of Shingrix covered in my province?" for details.

Abbreviations: GBS = Guillain-Barre syndrome; IM = intramuscular; PHN = post-herpetic neuralgia

References:

1. CDC. Shingles vaccination. August 19, 2025. https://www.cdc.gov/shingles/vaccines/. (Accessed November 8, 2025).
2. GSX. Shingrix.Cost and Coverage Information. https://www.shingrix.com/get-shingrix/shingles-vaccine-cost-coverage/. (Accessed November 8, 2025).
3. Medicare. Medicare & You 2026. https://www.medicare.gov/publications/10050-medicare-and-you.pdf. (Accessed November 8, 2025).
4. Product information for Shingrix. GlaxoSmithKline Biologicals. March 2025.
5. CDC. Clinical considerations for Shingrix use in immunocompromised adults aged ≥19 years. July 9, 2024. https://www.cdc.gov/shingles/hcp/vaccine-considerations/immunocompromised-adults.html. (Accessed November 8, 2025).
6. CDC. Pink Book. Chapter 23: Zoster. May 9, 2024. https://www.cdc.gov/pinkbook/hcp/table-of-contents/chapter-23-zoster.html. (Accessed Nov. 8, 2025).
7. Product monograph. Shingrix. GlaxoSmithKline. Mississauga, ON L5R 4H1. October 31, 2025.
8. Health Canada. Herpes zoster (shingles) vaccine: Canadian Immunization Guide. Last partial update: June 2025. https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-8-herpes-zoster-(shingles)-vaccine.html. (Accessed November 19, 2025).
9. CDC. Shingles vaccine recommendations. October 22, 2024. https://www.cdc.gov/shingles/hcp/vaccine-considerations/. (Accessed November 9, 2025).
10. Rayens E, Sy LS, Qian L, et al. Adjuvanted recombinant zoster vaccine is effective against herpes zoster ophthalmicus, and is associated with lower risk of acute myocardial infarction and stroke in adults aged ≥50 years. Clin Infect Dis. 2025 Aug 9:ciaf440.
11. Walia A, Sun Y, Acharya NR. Risk of Herpes Zoster Ophthalmicus Recurrence After Recombinant Zoster Vaccination. JAMA Ophthalmol. 2024 Mar 1;142(3):249-256.
12. Taquet M, Dercon Q, Todd JA, Harrison PJ. The recombinant shingles vaccine is associated with lower risk of dementia. Nat Med. 2024 Oct;30(10):2777-2781.
13. Eyting M, Xie M, Michalik F, et al. A natural experiment on the effect of herpes zoster vaccination on dementia. Nature. 2025 May;641(8062):438-446.
14. Naficy A, Kuxhausen A, Pirrotta P, et al. No Immunological Interference or Safety Concerns When Adjuvanted Recombinant Zoster Vaccine Is Coadministered With a Coronavirus Disease 2019 mRNA-1273 Booster Vaccine in Adults Aged 50 Years and Older: A Randomized Trial. Clin Infect Dis. 2023 Nov 11;77(9):1238-1246.

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Tetanus Prevention and Vaccination

full update July 2026

This resource covers management of wounds for the prevention of tetanus, recommendations for tetanus vaccination, and available tetanus toxoid-containing vaccines (including those combined with diphtheria and pertussis [whooping cough]. General information about tetanus vaccine side effects and tetanus itself is provided at the end of the document.

Approach to Tetanus Prevention in Wound Management

1. Provide wound care (e.g., clean wound, remove dirt and foreign material, debride necrotic tissue).[15]
2. Classify wound.
   - Clean, minor wound (does not post a major tetanus risk)[15]

   Or
   - Dirty/major wound (e.g., puncture/penetrating; contaminated with dirt, feces, or saliva (e.g., bites); crush injuries; wound from flying objects; avulsions; burns; compound fractures; frostbite; devitalized/necrotic tissue)[3,7,15]
3. Determine tetanus vaccination history (number of doses and date of last dose).[7]
4. Determine if a tetanus vaccine is needed today.[3,7,17-19]

Number of prior doses	Clean and minor wound	Other wounds (i.e., contaminated wounds)
Unknown or <3	Age-appropriate[a] vaccine needed.	Age-appropriate[a] vaccine needed. Immune globulin **(TIG) is also needed** (see step 5).
≥3 doses	Age-appropriate[a] vaccine needed **if last dose was >10 years ago.**	Age-appropriate[a] vaccine needed **if last dose was ≥5 years ago.**[b] (TIG **might** also be needed [see step 5]).

a. Age-appropriate vaccine (also see vaccine chart below):
   - If <7 years of age, use DTaP.[7] (If the child has a contraindication to the pertussis component, use Td.[16]) Also consider these special circumstances:
     - If <6 weeks of age, no vaccine is approved. For contaminated wounds, give TIG only.[14]
     - If an infant ≥6 weeks of age received only one dose of DTaP <4 weeks earlier, give TIG for immediate protection for contaminated wound and DTaP ≥4weeks after first DTaP dose.[14]
   - If ≥7 years of age, use Tdap. If a non-pregnant patient has previously received Tdap, Td can be used.[11]

b. History of arthus reaction: persons who have experienced an Arthus reaction following a dose of tetanus toxoid or diphtheria toxoid–containing vaccine should not receive a tetanus toxoid–containing vaccine more frequently than every 10 years.[7]

5. Decide if immune globulin (TIG) is needed. (Give 250 IU IM at a separate anatomical site from the vaccine).[3,7,15] TIG is indicated if:
   - Patient has received <3 prior tetanus vaccine doses (unless wound is clean and minor).[7]
   - Patient has HIV or severe immunodeficiency (unless wound is clean and minor).[3,7]

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ROUTINE Recommendations for Tetanus Vaccination

US	Canada
Children (DTaP-containing vaccine)[2,16-18] 5-dose series (3-dose primary series, then two boosters): • Age 2, 4, and 6 months • Booster at 15 to 18 months* • Booster at 4 to 6 years** *Dose 4 can be given as early as age 12 months if at least 6 months have passed since dose 3. A 4th dose given accidentally as early as age 12 months can be "counted" if at least 4 months have passed since dose 3. **Dose 5 is not required if dose 4 was given at ≥4 years of age and at least 6 months after dose 3. **Adolescents (Tdap)** • Adolescent booster at 11 to 12 years of age.[2,17,18] • Also see pregnancy and cocooning dose, below. **Adults (Td or Tdap)** • Adults need a tetanus booster every 10 years (Td or Tdap).[2,19] • Pregnancy: give one Tdap dose EACH pregnancy, ideally at 27 to 36 weeks gestation to protect infant from pertussis[2,5,17-19] • Cocooning dose: give one Tdap dose to adults/adolescents who will have close infant contact (if not previously given) preferably two weeks before infant contact, to protect infant from pertussis.[2] • Healthcare professional dose: give one dose of Tdap if not previously given, regardless of the time since their last Td.[2]	**Children (DTaP-containing vaccine)**[3] 5-dose series (3-dose primary series, then two boosters: • Age 2, 4, and 6 months • Booster at 12 to 23 months (usually at 18 months) • Booster at 4 to 6 years* *DTaP-IPV or Tdap-IPV can be used for Dose 5. Dose 5 is not required if dose 4 was given at ≥4 years of age and at least 6 months after dose 3. **Adolescents (Tdap)** • Adolescent booster at 14 to 16 years of age.[3] Use Tdap-IPV[c] if IPV is needed.[3] • Also see pregnancy, below. **Adults (Td or Tdap)** • Adults need a tetanus booster every 10 years (one should be Tdap).[3] • Pregnancy: give one Tdap dose EACH pregnancy, ideally at 27 to 32 weeks gestation to protect infant from pertussis.[6] • Cocooning dose: give one Tdap dose to adults (if not previously given in adulthood) who will have infant contact on a regular basis, preferably two weeks before infant contact, to protect infant from pertussis.[6] • Healthcare professional dose: give one dose of Tdap if not previously given in adulthood.[6]

Tetanus Vaccine Side Effects

- Local reactions (e.g., erythema, induration, pain at site) are common but self-limiting.[2]
- Arthus reactions (extensive, painful swelling of arm) are not common.[2]
  - Typically starts two to eight hours after the injection.[3]
  - More common in adults, particularly those who've received frequent doses of diphtheria or tetanus toxoid vaccines.[3]
  - Do NOT give tetanus toxoid vaccine to patients with a history of an Arthus reaction more than every 10 years.[2,3]
- Tetanus toxoid-containing vaccines are contraindicated in patients who had a severe allergic reaction/anaphylaxis to a previous dose or vaccine component.[2,3,17] Encephalopathy within 7 days after vaccination with DTaP or Tdap is a contraindication to DTaP or Tdap (US).[2,17,18]

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Comparison of Tetanus Toxoid-Containing Vaccines

- Can be given at the same visit as other vaccinations, at different injection sites, using separate needles and syringes.[3,4]
- Tetanus toxoid vaccines all have the same dose of tetanus toxoid.[12] Pediatric tetanus-diphtheria vaccines contain a higher dose of diphtheria and pertussis, required for children under seven years (denoted by the capitals "D" and "P" in the descriptions [e.g., **D**Ta**P**]).[1,12]

Vaccine	Age Range	Use
Tetanus toxoid, diphtheria +/- acellular pertussis		
Tdap (Adacel, Boostrix)	≥7 years[2,3]	• Adolescent booster (Canada: use Tdap-IPV[c] if IPV is needed)[2,3,18] • Adult booster (US: Tdap, then Td or Tdap; Canada: one should be Tdap)[2,3,19] • Pregnancy dose[2,5,6,17-19] • Cocooning dose[2,6] • Healthcare professional dose[2,6] • Primary series catch-up: first dose should be Tdap (Canada: Tdap-IPV[c]).[2,3,17-19] • Note (US): if ≥65 years of age, Boostrix preferred, but Adacel acceptable.[2]
Td (Tenivac [US], Td Adsorbed [Canada])		• Adult booster: (US: Td or Tdap; Canada: one should be Tdap).[2,3] • Primary series catch up (three doses): first dose should be Tdap (Canada: Tdap-IPV[c])[2,3,19]
Daptacel (DTaP)(US)	6 weeks through 6 years[9]	5-dose series (3-dose primary series at ages 2, 4, and 6 months, followed by booster doses at ages 15 to 18 months and 4 to 6 years).[16] If dose 4 is given on or after the 4th birthday, the 5th dose is optional.[2] Note: Dose 4 can be given at 12 months if at least 6 months have passed since the third dose.[16] But if the 4th dose is accidentally given at age 12 months and only 4 months have passed since the third dose, the dose "counts".[16]
Infanrix (DTaP)(US)		
DTaP Combination Vaccines for Children (US)		
Pediarix(US)(DTaP plus IPV and hep B)	6 weeks through 6 years[9]	Pediarix is FDA-approved for the 3-dose primary series. Follow with the 4th and 5th doses of DTaP and a 4th dose of polio at appropriate ages.[8]
Pentacel (US)(DTaP plus Hib and IPV)	6 weeks through 4 years[9]	Pentacel is FDA-approved for the first four doses of the component vaccines (2, 4, and 6 months, and 15 to 18 months).[2] Dose 4 must be separated from dose 3 by at least six months, and should not be given before age 12 months.[2] Follow with IPV or DTaP-IPV at age 4 to 6 years.[2]
Vaxelis (US)(DTaP plus Hib, hep B, and IPV)		Vaxelis is FDA-approved for the 3-dose primary series, with the final dose given at ≥24 weeks, the minimum age for completion of the hep B vaccine series.[2]

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Kinrix (US)(DTaP plus IPV)	4 to 6 years[9]	Kinrix is FDA-approved for the 5th DTaP dose and the 4th IPV dose in children who received Infanrix and/or Pediarix for doses 1,2, and 3, and Infanrix for the 4th dose.[2] However, if Kinrix is given to children who received another DTaP brand, or if Kinrix is given as dose 1, 2, 3, or 4 of the DTaP series, or dose 1, 2, 3 of the IPV series, it "counts."[2]
Quadracel (US)(DTaP plus IPV)	4 to 6 years of age[2]	Quadracel is FDA-approved for the 5th DTaP dose and the 4th and 5th IPV dose in children who received 4 doses of Pentacel and/or Daptacel. However, if Quadracel is given to children who received another DTaP brand for prior DTaP vaccines doses, or if Quadracel is accidentally given as dose 1, 2, 3, or 4 of the DTaP vaccine series, or dose 1, 2, or 3 of the IPV series, it "counts."[2]
DTaP Combination Vaccines for Children (Canada)		
Infanrix-IPV/Hib, Pentacel (Canada)(DTaP plus IPV and Hib)	6 weeks through 6 years[3]	Give at 2, 4, 6, and 12 to 23 months of age (generally given at 18 months of age).[3] Follow with a booster using DTaP-IPV (Quadracel) or Tdap-IPV[c] at 4 to 6 years of age, and Tdap as a booster at 14 to 16 years of age.[3] The booster at 4 to 6 years of age is not needed if the 4th dose of tetanus-toxoid-containing vaccine was given after the fourth birthday.[3]
Infanrix hexa (Canda)(DTaP plus Hib, hep B, and IPV	6 weeks through 6 years[3]	Can give at 2, 4, 6 and 12 to 23 months, but the fourth dose is unlikely to provide additional hep B protection and will increase cost. Alternatively, give at 2, 4, and 6 months, with Infanrix-IPV/Hib or Pentacel as the dose at 12 to 23-months, **or** give at 2, 4, and 12 to 23 months of age with Infanrix-IPV/Hib or Pentacel as the dose at 6 months.[3] Follow with a booster using DTaP-IPV (Quadracel) or Tdap-IPV[c] at 4 to 6 years of age, and Tdap as a booster at 14 to 16 years of age.[3] The booster at 4 to 6 years of age is not needed if the fourth dose of tetanus-toxoid-containing vaccine was given after the fourth birthday.[3]
Quadracel (Canada)(DTaP plus IVP)	4 through 6 years of age[3]	Can use for the 4 to 6 years of age booster.[3]

c. Boostrix-Polio or Adacel-Polio (Tdap-IPV) (Canada)

General Information About Tetanus

- Tetanus is caused by a neurotoxin from the bacterium *Clostridium tetani*. Its spores are found in contaminated soil, and sometimes in feces.[3]
- Tetanus is rare in fully immunized people, but the mortality rate is ~10%.[3,10]
- There are three clinical forms of tetanus: **generalized** (e.g., difficulty following or breathing, generalized spams [often caused by sensory stimuli], rigidity, seizures, trismus [lockjaw]), **localized** (e.g., localized spasms near wound), and rarely **cephalic** (e.g., flaccid cranial palsies; can be associated with otitis media, and can progress to generalized tetanus).[13]
- Tetanus is a clinical diagnosis; there is no test for it.[13]

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Abbreviations: DTaP = diphtheria and tetanus toxoids and acellular pertussis vaccine; hep = hepatitis; Hib = *Haemophilus influenzae* type B; IM = intramuscular; IPV = inactivated polio vaccine; Tdap = tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis; Td = tetanus and diphtheria toxoids; TIG = tetanus immune globulin

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References

1. CDC. Epidemiology and Prevention of Vaccine-Preventable Diseases. Pertussis. April 12, 2024. https://www.cdc.gov/pinkbook/hcp/table-of-contents/chapter-16-pertussis.html. (Accessed June 25, 2026).
2. CDC. Epidemiology and Prevention of Vaccine-Preventable Diseases. Tetanus. https://www.cdc.gov/pinkbook/hcp/table-of-contents/chapter-21-tetanus.html. April 25, 2024. (Accessed June 24, 2026).
3. Government of Canada. Tetanus toxoid: Canadian Immunization Guide. Last update June 2026.. https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-22-tetanus-toxoid.html. (Accessed June 23, 2026).
4. CDC. Epidemiology and Prevention of Vaccine-Preventable Diseases. General Best Practice Guidance for Immunization. April 22, 2024. https://www.cdc.gov/pinkbook/hcp/table-of-contents/chapter-2-general-best-practice-guidance.html, (Accessed June 25, 2026).
5. CDC. Pertussis Vaccination Recommendations. December 2, 2025. https://www.cdc.gov/pertussis/hcp/vaccine-recommendations/. (Accessed June 25, 2026).
6. Government of Canada. Pertussis (whooping cough) vaccines: Canadian Immunization Guide. May 4, 2026. https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-15-pertussis-vaccine.html. (Accessed June 25, 2026).
7. Liang JL, Tiwari T, Moro P, et al. Prevention of Pertussis, Tetanus, and Diphtheria with Vaccines in the United States: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep. 2018 Apr 27;67(2):1-44.
8. CDC. Pediarix Vaccine: questions and answers. January 2, 2013. https://www.cdc.gov/vaccines/vpd/hepb/hcp/faqs-hcp-pediarix.html. (Accessed June 24, 2026).
9. CDC. Diptheria, Tetanus, and Pertussis Vaccine Safety. January 31, 2025. https://www.cdc.gov/vaccine-safety/vaccines/dtap-tdap.html. (Accessed June 24, 2026).
10. CDC. Clinical Overview of Tetanus. June 10, 2025. https://www.cdc.gov/tetanus/hcp/clinical-overview/?CDC_AAref_Val=https://www.cdc.gov/tetanus/clinicians.html. (Accessed June 23, 2026).
11. Havers FP, Moro PL, Hunter P, et al. Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccines: Updated Recommendations of the Advisory Committee on Immunization Practices - United States, 2019. MMWR Morb Mortal Wkly Rep. 2020 Jan 24;69(3):77-83.
12. Immunization Action Coalition. Ask the experts: Tetanus: Vaccine Products. March 31, 2022. https://www.immunize.org/ask-experts/topic/tetanus/vaccine-products-tetanus/. (Accessed June 25, 2026).
13. CDC. Clinical features of tetanus. June 10, 2025. https://www.cdc.gov/tetanus/hcp/clinical-signs/index.html. (Accessed June 23, 2026).
14. Minnesota Department of Health. Summary Guide to Tetanus Prophylaxis in Routine Wound Management. September 17, 2025. https://www.health.state.mn.us/diseases/tetanus/hcp/tetwdmgmtc.pdf. (Accessed June 23, 2026).
15. CDC. Clinical Guidance for Wound Management to Prevent Tetanus. June 10, 2025. https://www.cdc.gov/tetanus/hcp/clinical-guidance/index.html. (Accessed June 22, 2026).
16. CDC. Child immunization schedule notes. July 2, 2025. https://www.cdc.gov/vaccines/hcp/imz-schedules/child-adolescent-notes.html#note-dtap. (Accessed June 22, 2026).
17. American Academy of Pediatrics. Recommended Child and Adolescent Immunization Schedule for Ages 18 Years and Younger. United States 2026. https://downloads.aap.org/AAP/PDF/AAP-Immunization-Schedule.pdf. (Accessed 7-20-26).
18. American Academy of Family Physicians. Birth through age 18 immunization schedules.. 2026. https://www.aafp.org/clinical-insights/immunizations-and-vaccines/immunizations-schedules-resources/childhood-vaccine-schedules. (Accessed July 20, 2026).
19. American Academy of Family Physicians. Adults 19 and older immunization schedules. 2026. https://www.aafp.org/clinical-insights/immunizations-and-vaccines/immunizations-schedules-resources/adult-immunization-schedules. (Accessed July 20, 2026).

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