

Pediatric Vaccines

A Clinical Decision Support Chart

WHAT YOU'RE PROTECTING AGAINST, AND WHY IT'S IMPORTANT TODAY



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American Academy of Pediatrics

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Introduction

This chart is intended to help pediatricians and other physicians and nonphysician clinicians (collectively referred to as *health care professionals*) have deeper discussions with their patients about childhood and adolescent vaccines, the diseases they help to prevent, and how parents are doing the best for their children by vaccinating fully and on time.

The patient-facing pages of the chart are designed for health care professionals to use as a visual aid while addressing patients' and parents' questions about vaccines. Infographics and clinical images from American Academy of Pediatrics (AAP) visual libraries help to illustrate why vaccines remain important in an era when many of these diseases are not encountered by the general public—thanks, widely, to the introduction of vaccines and consequent herd immunity. The information helps patients understand the importance of vaccines, the rationale for the current schedule, and why they are receiving a strong recommendation from their health care professionals.

The health care professional-facing pages supply additional information for health care professionals about the etiology and nature of the diseases and current recommendations for vaccine schedules. Sections on immunization in pregnancy offer opportunities to initiate discussions during routine visits with parents expecting a child or planning for another child.

Guidance in this chart is derived from AAP resources such as *Red Book*® and *Pediatric Patient Education*™ and Centers for Disease Control and Prevention Vaccine Information Statements and other recommendations. View the most current recommended immunization schedules at <https://www.cdc.gov/vaccines/schedules>.

General recommendations in this chart are for healthy newborns, infants, children, and adolescents with no immunocompromising risk factors, chronic health care needs, special circumstances, or contraindications. For complete current recommendations for the care of children, consult *AAP Red Book*® Online (<https://redbook.solutions.aap.org>) and the Centers for Disease Control and Prevention (<https://www.cdc.gov>). *Red Book Online* access, including the latest policy and practice updates, is free to all AAP members and available to non-AAP members by subscription.

Parents can find more information on vaccine schedules—as well as information on their child's development from birth through the teenage years—at [HealthyChildren.org](https://www.healthychildren.org), the official AAP website for parents.

Simultaneous Vaccine Administration

Simultaneous administration of most vaccines is safe, effective, and recommended.

Infants and children develop a strong immune response to recommended vaccines given at the same time. There is no reason to spread out the doses of the vaccines that are recommended at a certain age, with 2 exceptions:

- 1** Meningococcal conjugate vaccine (MCV4-D) (Menactra; Sanofi Pasteur) should not be given for at least 4 weeks after all doses of pneumococcal 13-valent conjugate vaccine (PCV13) have been administered because of interference with the immune response to certain serotypes in the PCV13 vaccine, because both vaccines are conjugated to diphtheria toxin carrier protein.
- 2** For high-risk children for whom both PCV13 and pneumococcal polysaccharide vaccine (PPSV23) are recommended, the dose of PPSV23 at 2 years or older should be administered at least 8 weeks after PCV13. When PCV13 is indicated, despite receipt of PPSV23, there should be a minimum interval of 8 weeks between vaccines.

The immune response to 1 vaccine generally does not interfere with responses to other vaccines. Simultaneous administration of inactivated poliovirus (IPV), measles-mumps-rubella (MMR), varicella, or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccines results in rates of seroconversion and of adverse events similar to those observed when vaccines are administered at separate visits. A slightly increased risk of febrile seizures is associated with the first dose of measles-mumps-rubella-varicella (MMRV) compared with MMR and monovalent varicella vaccines administered simultaneously at separate sites among children 12 through 23 months of age; after dose 1 of MMRV vaccine, 1 additional febrile seizure is expected to occur per approximately 2,300 to 2,600 young children immunized, compared with MMR and monovalent varicella vaccines. During the 2 influenza seasons between 2010 and 2012, there were reports of febrile seizures in the United States in young children who received inactivated influenza vaccine (IIV) and PCV13 concurrently.

One additional febrile seizure is expected to occur per approximately 2,200 doses. Vaccine Safety Datalink (VSD) data from the 2013–2014 and 2014–2015 influenza seasons describe an increased risk of seizure among children 6 through 24 months of age 0 to 1 day after concurrent receipt of IIV3 and PCV13. Simultaneous administration of IIV and PCV13 continues to be recommended when both vaccines are indicated because of the preponderance of benefit relative to the risk.

Because simultaneous administration of routinely recommended vaccines is not known to alter the effectiveness or safety of any of the recommended childhood vaccines, simultaneous administration of all vaccines that are appropriate for the age and immunization status of the recipient is recommended.¹ When vaccines are administered simultaneously, separate syringes and separate sites should be used, and injections into the same extremity should be separated by at least 1 inch so that any local reactions can be differentiated. Simultaneous administration of multiple vaccines can increase immunization rates significantly. Individual vaccines should never be mixed in the same syringe unless they are specifically approved and labeled for administration in 1 syringe. If an inactivated vaccine and an immune globulin product are indicated concurrently (eg, hepatitis B vaccine and hepatitis B immune globulin, rabies vaccine and rabies immune globulin, tetanus-containing vaccine and tetanus immune globulin), they should be administered at separate anatomic sites.

The number of injections a child receives in a single visit can be decreased by the use of combination vaccines. These combinations provide more of the needed vaccines in a single injection. A number are available, and your health care professional has chosen the combination vaccines which best fit the needs of the health care professional's patients.

Reference

1. Ezeanolue E, Harriman K, Hunter P, Kroger A, Pellegrini C. General best practice guidelines for immunization. Best practices guidance of the Advisory Committee on Immunization Practices (ACIP). <https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf>. Accessed May 27, 2020