

CENTER FOR DISEASE PREVENTION & EPIDEMIOLOGY • OREGON HEALTH DIVISION

NEW PEDIATRIC IMMUNIZATION SCHEDULES

WHILE THE APOGEAN position of sliced bread still seems secure, surely immunization must rank as one of the crowning achievements of the modern era. In a kind of reverse voodoo, sticking needles into people can provide a lifelong blessing. Childhood vaccinations don't just protect kids. Many of the diseases covered by these shots (e.g., hepatitis B, tetanus) are most common among adults. Others (e.g., mumps, varicella) are often more devastating when acquired by adults, making immunization even more important as childhood exposures become rare.

With the advent of new vaccines, recommended schedules change. We're sorry we can't make it any simpler to keep up, but the chart (*infra*) attempts to summarize the basics for routine childhood immunizations. There are a number of changes, including the addition of varicella vaccine, recommendations for the use of inactivated polio vaccine (IPV), and a blanket recommendation for acellular pertussis in the DTaP combination.

NEW SCHOOL REQUIREMENTS

New Oregon requirements for childhood vaccinations are being phased in over the next several years. The changes

include additional requirements for school entry (kindergarten), 7th grade admission (a first in Oregon), and attendance at selected children's facilities (e.g., child care, preschool, HeadStart). The new requirements include hepatitis B shots, second-dose measles (typically a second MMR), and varicella (see mini-table on back). More details on these new laws will be provided in a forthcoming issue of the *CD Summary*.

For more information about the Immunization Schedule or the new school rules, contact the Immunization Program (503/731-4020).



CLIP 'N SAVE



Recommended Childhood Immunization Schedule for 1998

Approved by the Advisory Committee on Immunization Practices (ACIP), American Academy of Pediatrics (AAP), American Academy of Family Physicians (AAFP), and most importantly, the Oregon Health Division (OHD).

age ▶ ▼ vaccine	lift-off (birth)	1 month	2 months	4 months	6 months	12 months	15 months	18 months	4-6 years	11-12 years	14-16 years
hepatitis B ¹	hep B-1	hep B-2		hep B-3						hep B	
diphtheria tetanus pertussis ²			DTaP	DTaP	DTaP		DTaP		DTaP	Td	
<i>H. influenzae</i> type b ³			Hib	Hib	Hib	Hib					
polio ⁴			polio	polio	polio				polio		
measles mumps rubella ⁵						MMR			MMR	MMR	
varicella ⁶						varicella				var	

- This schedule indicates the recommended age for routine administration of currently licensed childhood vaccines. Some combination vaccines are also available and may be used whenever administration of all components of the vaccine is indicated. Injectors should consult the manufacturers' package inserts for detailed recommendations.
- The grey bars indicate preferred age ranges for certain vaccine doses. Catch-up immunizations should be done during any visit when feasible. Shaded ovals indicate vaccines to be assessed and given if necessary during the early adolescent visit.
- Every shot hath its footnotes, and they're all important, even if they're not at the foot. As Julius Cæsar used to say, "vide verso."

New Oregon Vaccine Requirements for Kids



The table shows new shots being added to current school entry requirements, with their effective dates (by school year). Plan ahead! More later....

effective	Children's Facilities	School Entry (kindergarten)	7th Grade
1998/99	hepatitis B	hepatitis B 2nd dose measles	no change
2000/01	varicella	varicella	hepatitis B 2nd dose measles varicella

EXPLANATORY FOOTNOTES —Recommended Childhood Immunization Schedule for 1998

1. Hepatitis B.

Infants born to HBsAg-negative mothers should receive 2.5 µg* of Recombivax HB® (Merck) or 10 µg of Engerix-B® (SmithKline Beecham). The 2nd dose should be administered at least 1 month after the 1st dose. The 3rd dose should be given at least 2 months after the second, but not before 6 months of age.

Infants born to HBsAg-positive mothers should receive 0.5 ml hepatitis B immune globulin (HBIG) within 12 hours of birth, and either 5 µg of Recombivax HB or 10 µg of Engerix-B at a separate site. The 2nd dose is recommended at 1–2 months of age; the 3rd at 6 months.

Infants born to mothers whose HBsAg status is unknown should receive either 5 µg of Recombivax HB or 10 µg of Engerix-B within 12 hours of birth. The 2nd dose of vaccine is recommended at 1 month of age and the 3rd dose at 6 months of age. Blood should be drawn at the time of delivery to determine the mother's HBsAg status; if positive, the kid should receive HBIG as soon as possible (no later than 1 week after birth). The dosage and timing of subsequent vaccine doses should be based upon the mothers HBsAg status.

Children and adolescents who have not been vaccinated against hepatitis B in infancy may begin the series during any visit. Those who have not previously received 3 doses of hepatitis B vaccine should initiate or complete the series during the 11-12 year-old visit, and unvaccinated older adolescents should be vaccinated whenever possible. The 2nd dose should be administered at least 1 month after the 1st dose, and the 3rd dose should be administered at least 4 months after the 1st dose and at least 2 months after the 2nd dose.

2. Diphtheria, tetanus, pertussis. DTaP is now the preferred vaccine for all doses in the vaccination series, including completion of the series in children who have received 1 or more doses of whole-cell DTP vaccine. Whole-cell DTP is an acceptable alternative to DTaP in some situations (e.g., DTaP is unavailable, or when given as part of certain,

otherwise desirable combination vaccines). The 4th dose (DTP or DTaP) may be administered as early as 12 months of age, provided 6 months have elapsed since the 3rd dose and if the child is unlikely to return at age 15–18 months. Td (tetanus and diphtheria toxoids) is recommended at 11–12 years of age if at least 5 years have elapsed since the last dose of DTP, DTaP or DT. Subsequent routine Td boosters are recommended every 10 years.

- 3. **Haemophilus influenzae type b.** Three *H. influenzae* type b (Hib) conjugate vaccines are licensed for infant use. If PRP-OMP (Pedvax-HIB® [Merck]) is administered at 2 and 4 months of age, a dose at 6 months is not required.
- 4. **Polio.** Two poliovirus vaccines are currently licensed in the U.S.: inactivated poliovirus vaccine (IPV) and oral poliovirus vaccine (OPV). The following schedules are all acceptable to the ACIP, the AAP, and the AAFP. Parents and providers may choose among these options.
 - a. 2 doses of IPV followed by 2 doses of OPV
 - b. 4 doses of IPV
 - c. 4 doses of OPV

The ACIP recommends 2 doses of IPV at 2 and 4 months of age followed by 2 doses of OPV at 12-18 months and 4-6 years of age. IPV is the only poliovirus vaccine recommended for immunocompromised persons and their household contacts.

- 5. **Measles, mumps, rubella.** The 2nd dose of MMR is recommended routinely at 4–6 years of age but may be administered during any visit, provided at least 1 month has elapsed since receipt of the 1st dose, which must be administered at or after 12 months of age. Those who have not previously received the second dose should complete the schedule no later than the 11–12 year visit.
- 6. **Varicella.** Susceptible children may receive varicella vaccine (Var) at any visit after the 1st birthday, and those who lack a reliable history of chickenpox should be immunized during the 11–12 year-old visit. Susceptible children 13 years of age or older should receive 2 doses, at least 1 month apart.

* Far be it for us to quibble with the august bodies who drafted this schedule, but I think when they say "µg [of vaccine]" they mean "µg of antigen in whatever volume is determined by the antigen:diluent ratio of the preparation in question." Don't try to weigh out 2.5 or 10 µg on your office scale.