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Immunization Schedule

National Immunization Schedule

The national immunization schedule (Table 3.1) comprises of those vaccines that are given free of cost to all children of the country under EPI.

Table 3.1: *National immunization schedule*

<i>Age</i>	<i>Vaccines</i>
Birth	BCG, OPV0 (for institutional deliveries)
6 weeks	DTwP1, OPV1, Hep B1 ^s , Hib1 ^s (BCG if not given at birth)
10 weeks	DTwP2, OPV2, Hep B2, Hib2
14 weeks	DTwP3, OPV3, HepB3, Hib3
9-12 months	Measles
16-24 months	DTwP B1, OPV4, MMR ^s
5-6 years	DT*
10 years	TT**
16 years	TT
Pregnant women	TT1 (early in pregnancy) TT2 (1 month later) TT booster (if vaccinated in past 3 years)
Vitamin A	9, 18, 24, 30 and 36 months

^sHepB, MMR and Hib are available in some districts only

*A second dose of DT vaccine should be given at an interval of one month if there is no clear history or documented evidence of previous immunization with DTwP

**A second dose of TT vaccine should be given at an interval of one month if there is no clear history or documented evidence of previous immunization with DTwP, DT or TT vaccines.

IAP Immunization Schedule

The IAP committee on immunization submits its position on vaccines not included in the national schedule on a periodic basis

as they are introduced in the private market. The process of issuing recommendations involves an exhaustive review of published literature including standard text books, vaccine trials, recommendations of various countries, World Health Organization (WHO) position papers, literature from the vaccine industry, post-marketing surveillance reports, cost-effective analysis, epidemiology of disease in India and if available Indian studies on vaccine efficacy, immunogenicity and safety. If knowledge gaps are present then expert opinion is sought to fill the gaps. The existing national immunization schedule and government policies are also considered. These recommendations of IAPCOI are primarily for pediatricians in office practice. In addition, IAPCOI also submits its position on incorporation of various new vaccines in the national immunization schedule.

The IAPCOI has categorized vaccines into four categories (Table 3.2).

1. Vaccines covered under Expanded Program on Immunization (EPI).
2. Vaccines recommended by IAP in addition to EPI vaccines.
3. Vaccines which are to be given after one-to-one discussion with the parents.
4. Vaccines to be given in special circumstances.

Category 2 vaccines are those that are unequivocally recommended by the IAPCOI for an individual child if parents can afford the vaccine. Category 3 vaccines are those where the cost benefit ratio or the vaccine efficacy for an individual child is lower than category 2 vaccines as of currently available data and hence are to be administered after one-to-one discussion with parents on a named child basis. When any new vaccine is introduced in the market (and is not part of EPI), IAPCOI has to take decision about categorization of the vaccine in category 2 or 3. This decision is based on the likely disease burden (morbidity and mortality) in the individual child, vaccine efficacy, safety and cost; all in the Indian context. Hence hepatitis A/chicken pox vaccines where disease morbidity is usually low and costs are high and pneumococcal conjugate/rotavirus vaccines where vaccine efficacy in the Indian scenario is uncertain are included in Category 3. It is important to note

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that this categorization is largely based on expert opinion (Level III evidence) as reliable India specific epidemiologic and vaccine immunogenicity/efficacy data is not available. Also this categorization is dynamic and as new information becomes available, transition between categories may occur.

Table 3.2: IAP categorization of vaccines (2009)

<i>Category 1</i>	<i>Category 2</i>	<i>Category 3</i>	<i>Category 4</i>
<i>EPI vaccines</i>	<i>IAP recommended vaccines (in addition to EPI)</i>	<i>Vaccines to be given after one to one discussion</i>	<i>Vaccines under special circumstances</i>
BCG	Typhoid	PCV7	Rabies
OPV	Hib	Hepatitis A	Influenza
DTwP	Hep B	Chicken pox	PPV23
Measles	MMR	DTaP	Japanese encephalitis
DT	IPV	Rotavirus	Meningococcal
TT	Tdap		
Hep B*	Td		
MMR*	HPV		
Hib*			

*Some districts only

BCG: Bacillus Calmette Guerin; OPV: Oral polio vaccine; DTwP: Diphtheria, tetanus, whole cell pertussis ; DT: Diphtheria and tetanus toxoid; TT: Tetanus toxoid; Hep B: Hepatitis B vaccine; MMR: Measles, mumps, rubella vaccine; Hib: Hemophilus influenzae type 'b' vaccine; IPV: Inactivated poliovirus vaccine; Td: Tetanus, reduced dose diphtheria toxoid; Tdap: Tetanus, reduced dose diphtheria and acellular pertussis vaccine; HPV: Human papilloma virus vaccine; PCV 7: 7 valent pneumococcal conjugate vaccine; DTaP: Diphtheria, Tetanus, acellular pertussis vaccine; PPV 23: 23 valent pneumococcal polysaccharide vaccine.

Table 3.3 details the latest immunization schedule recommended by IAPCOI and includes Category 1, 2 and 3 vaccines. Details of individual vaccines, basis for their categorization and position in the immunization schedule is detailed in chapter 4.

Table 3.3: IAP immunization time table 2009

IAP recommended vaccines

<i>Age</i>	<i>Vaccines</i>
Birth	BCG OPV0 HepB 1

(Contd...)

(Contd...)

Age	Vaccines
6 weeks	DTwP1/DTaP1 OPV1*/OPV1+IPV1 Hib1 HepB2
10 weeks	DTwP2/DTaP2 OPV2/OPV2+IPV2 Hib 2
14 weeks	DTwP3/DTaP3 OPV3/OPV3+IPV3 Hib3 HepB3**
9 months	Measles
15-18 months	DTwP B1/DTaP B1 OPV4/OPV4+IPVB1 Hib B1 MMR1
2 years	Typhoid#
5 years	DTwP B2/DTaP B2 OPV5 MMR2 [§]
10 years	Tdap/Td ^{&} HPV [^]

* OPV alone if IPV cannot be given

**The third dose of Hepatitis B can be given at 6 months

Revaccination every 3 years

[§]The second dose of MMR vaccine can be given at any time 4-8 weeks after the first dose

[&] Tdap preferred to Td, followed by repeat Td every 10 years

[^] Only females, three doses at 0, 1-2 and 6 months.

Vaccines to be given after one to one discussion with parents

Age	Vaccine
≥ 6 weeks	Rotavirus vaccine* PCV 7#
≥ 15 months	Varicella [§]
≥ 18 months	Hepatitis A [^]

*Rotavirus vaccine (2/3 doses (depending on brand) at 4-8 weeks interval)

PCV 7 (three doses at 6, 10 and 14 weeks and 1 booster at 15-18 months)

[§] Varicella (< 13 years single dose, ≥ 13 years two doses at 4-8 weeks interval)

[^] Hepatitis A (2 doses at 6 months interval).