Immunization

IAP'S IMMUNIZATION TIME TABLE IN PEDIATRICS

1. Introduction

The National Universal Immunization Programme (UIP) and its immunization schedule cover the basic minimum immunization needs of all infants in the country. The IAP endorses and fully supports them. When parents are able and willing to pay the cost additional doses of certain UTP vaccines and selected additional vaccines against certain diseases of public health importance, are recommended by IAP for the guidance of pediatricians.

The composite Time Table including all the above vaccines and doses is presented below:

2. Immunization Time Table

2.1 Vaccine/Dose and Recommended Age

2.2 Explanatory Notes

(a) The numeral suffix within parenthesis indicates the dose number. For example, DPT (1) means the first dose of DPT.

(b) The letter B within parenthesis indicates booster dose

(c) When two injections are given at one session (or clinic visit) they should be given at separate sites.

(d) The preferred sites and depths of injections are as follows:

(i) BCG-Intradermal, left shoulder, at the level of origin of deltoid muscle

Immunization Session No.	Vaccine and dose			Recommended age
1.	BCG	OPV (1)	HB(1)	Birth to 2 weeks
2.	DPT (1)	OPV (2)	HB (2)	6 weeks
3.	DPT (2)	OPV (3)	..	10 weeks
4.	DPT (3)	OPV (4)	..	14 weeks
5.	..	OPV (5)	HB (3)	6-9 weeks
6.	Measles	..	..	9 months
7.	MMR	..	..	15-18 months
8.	DPT (B1)	OPV (6)	..	18-24 months
9.	DPT (B2)	OPV (7)	HB (B1)	5 years
10.	TT (B3)	..	..	10 years
11.	TT (B4)	..	HB (B2)	15-16 years

(ii) DPT, DT, TT } Intramuscular, anterolateral aspect of thigh or gluteus upper outer quadrant

(iii) Measles, MMR } Subcutaneous, anterolateral thigh or upper arm.

(iv) HB-Intramuscular, anterolateral thigh or upper arm.

(e) If for some reason the time table cannot be applied exactly, a minimum interval of 4 weeks must be given between two successive vaccine sessions.

(*f*) For better protection from vertical transmission of hepatitis B virus infection, HB (1) should be given as soon as possible after birth, preferably within 12 hours.

(g) Session 5 may be avoided if OPV (5) and HB (3) are given at 9 months when measles vaccine is given

(h) Session 7 may be avoided if MMR is given at 18 months when DPT (B1) and OPV (6) are given.

3. **Option For Other Vaccines**

3.1. Vaccines Against Typhoid Fever

There are 3 different vaccines against-typhoid fever, namely, whole cell killed vaccine (usually known as TA vaccine since it includes Salmonella paratyphi A also), oral S. typhi Ty21a vaccine and Vi polysaccharide vaccine. The TA is manufactured by several institutions in India, is very cheap, but it frequently causes side effects such as local pain and induration and fever lasting 2 or 3 days. Oral vaccine is imported and more expensive, but it has very few side effects. Vi vaccine is also imported, and is very expensive, but it also has very few side effects.

Pediatricians may choose to offer immunization to children in localities in which typhoid fever is perceived to be prevalent among them. The protective efficacies of these vaccines in children below 6 years have not been adequately investigated. Where typhoid is widely prevalent in this age group, TA or Vi vaccine may be given at 2 years of age, followed by subsequent doses at 3-5 years intervals. The dosages are as recommended by the manufacturers. Those who prefer oral vaccine may give it at 6 years of age and repeat at 3-5 years intervals according to the instructions of the manufacturer.

3.2. *Vaccine Against Japanese Encephalitis*

Although Japanese encephalitis is a public health problem in certain regions of India, the quantity of vaccine manufactured in the country is insufficient to be made available widely.

3.3. Vaccines Against Meningococcal Disease

The use of meningococcal vaccines should be guided by epidemiological information such as prevalence and age groups affected in specific geographic regions and the serotype of micro-organism. The vaccines are not recommended for routine use.

3.4. Haemophilus influenzae type b (Hib)

Hib vaccines, either conjugated or not conjugated are now available. They have excellent record of safety and efficacy in several countries in America and Europe. However, due to paucity of epidemiological data on the magnitude of the incidence of disease and on the pa-

rameters of efficacy of the different vaccines, no recommendations are possible at the present time. Choice of this vaccine is left to the option of pediatricians.

Members of the IAP Committee on Immunization

This time table emanates from the recommendations of the TAP Committee on Immunization, whose composition is: Chairman: Dr. T. Jacob John; Convener: Dr. A. Parthasarathy; Co-ordinators: Dr. R.D. Potdar, Dr. R.K. Puri; Members: Dr. S.R. Banerjee, Dr. M. Nagaraja Rao, Dr. H.P.S. Sachdev, Dr. N. Shendurnikar; Members Ex-Officio: Dr. Y.K. Amdekar, Dr. U.G. Bodhankar, Dr. M.R. Lokeshwar, Dr. Raju C. Shah.

Dr. T. Jacob John, Professor and Head Department of Clinical Virology, Christian Medical College Hospital, Vellore 632 *004 responds to questions raised by Dr. Sumitha nayak, 44 NTl Colony, RMV Extension 2nd stage, Bangalore 560 094.*

Q. **Is the 2nd dose of MMR mandatory at puberty?**

A. No, a second dose of MMR is not mandatory either at puberty or at any other age. The USA and some other countries have a schedule of immunization in which a second dose of measles vaccine is due either at 4-6 years of age or at 10-12 years of age. For convenience, MMR vaccine is often given since measles vaccine as such is not usually available in the market. In our country, there is no particular need for a second dose of MMR at this time. On the other hand, a dose of measles vaccine at 9 months and **a** dose of MMR at 12-15 months are what the IAP Committee on Immunization has recommended.

Q. **Can DPT be given to a child with hypoxic-ischemic encephalopathy (HIE) at' birth with no history of seizures?**

A. HIE may be mild, moderate or severe. In mild (Stage 1) HIE, recovery is usually complete and the baby grows and develops normally. In moderate (Stage 2) HIE some variable sequelae may persist. In such infants the neurological status is either non-progressive or actually improving. There is no contraindication to giving DPT in such children. In severe (Stage 3) HIE, usually there are severe sequelae. If the general condition permits, DPT can be given without detriment.

In infants with any suspicion of neurological illness/deficit, the age of the first dose of DPT may be delayed beyond 6 weeks in order to get a better picture of the nature of the condition.

Q. **What is the role of interferon in the treatment of Hepatitis B? Will it reduce the incidence of a carrier state and/or complications of HB infection?**

A. This question is not entirely appropriate for the Immunization Dialogue Section. However, there is no role for interferon therapy in hepatitis B infection, which is acute hepatitis due to hepatitis B Virus (HBV). In children HBV infection seldom causes clinical icteric hepatitis. To consider interferon therapy during anicteric HBV infection is quite unrealistic and unnecessary. Among adolescents and adults, the vast majority (about 90-95%) with hepatitis B recover without developing carrier state or complications of chronic liver disease. Therefore, it would again be quite unrealistic to consider interferon therapy in all cases to prevent carrier state in some 5% subjects. Once carrier state or chronic liver disease is established there is a role for interferon thereapy in an attempt to reverse the condition. Currently alpha interferon therapy is recommended for persons with chronic liver disease due to HBV; such persons are usually HBe Ag Positive. Nearly half of them seroconvert and become HBe Ag negative and Anti-HBe positive. All these problems can be avoided by immunization against HBV in infancy.