

## IMMUNIZATION PRACTICES AMONGST PEDIATRICIANS: A POSTAL SURVEY

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### ABSTRACT

*A postal survey regarding immunization practices amongst pediatricians was conducted. Out of 250 contacted, 108 responded (43.2%). The responders consisted of senior pediatricians, out of which 31 were serving or were retired Professors of Pediatrics from various Medical Colleges (27.7%).*

*The survey showed that 20.4% give 3 doses of OPV during the first year, 18.5% give 4 doses and 61.1% give 5 doses. Only 11.1% give one "booster" dose of OPV, 72.2% give 2, 13% give 3 and 3.7% give 4 or more "booster" doses. Only 11.1% give "booster" doses upto the age of 2 years, 76.9% upto 5 year, while 12% give "booster" doses beyond the age of 5 years—some upto 14 years of age. Thirty six per cent advice 4 weeks and 36.1% advice 4-6 weeks interval between 2 OPV doses. Nearly one fifth (22.7%) give BCG "booster" dose upto 5 years of age and 6,5 give "booster" to adolescents. Thirteen per cent give Measles/MMR vaccines booster dose beyond the age of 2 years upto 16 years. This study shows that pediatricians follow different schedules and regimes for almost all the vaccines. Often similar schedules are not practised by pediatricians working in the same institutions.*

**Key words:** Immunization practice.

The Expanded Programme on Immunization (EPI) was launched in India in 1978, but in view of the poor coverage for EPI vaccines, the Universal Immunization Programme (UIP) was introduced in 1985. The idea was to stress the concept of early immunity by providing better coverage of immunization of children before the age of 1 year. In EPI, the target was children upto 5 years whereas in UIP the target is infants below 1 year.

In 1987, the WHO Global Advisory Committee on Immunization advised introduction of OPV at birth and recommended 5th dose of OPV for developing countries along with Measles vaccine.

The Committee on Immunization of the Indian Academy of Pediatrics(1) in 1989, recommended 5 doses of OPV during the first year. The Committee also recommended that the interval between 2 doses should be increased from 4 to 8 weeks, and 2 "booster" doses of OPV and DPT vaccines at 1<sup>1/2</sup> to 2 years and 4 to 5 years of age.

The author has been following the IAP schedule since 1991 and parents were advised accordingly. Many parents were reluctant to increase the interval between 2 doses and considered the second "booster" dose unnecessary. This prompted the author to undertake the survey to evaluate the immunization practices amongst pediatricians.

### Material and Methods

A questionnaire was developed to ascer-

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Received for publication: April 22, 1993;

Accepted: March 11, 1994

tain the immunization practice regarding Oral Polio Vaccine (OPV), BCG, Measles and MMR immunizations. Questions were designed to ascertain the number of doses of OPV given during the first year, minimum interval practiced and the interval advised between 2 doses, number of booster doses and the upper age for administering OPV/BCG/Measles or MMR booster doses.

Because of financial and manpower constraints, the questionnaires were sent to only 250 pediatricians. All the 8 members of the IAP Committee on Immunization, and all the contributors to the book entitled "Immunization in Practice"(2) were included. The names and addresses were obtained from the All Indian Directory of the Indian Academy of Pediatrics, and all those who had mentioned Immunization as their subject of special interest in the directory were included. Other names were selected with an attempt to include pediatricians above the age of 40 years from all over India. All questionnaires were accompanied by a self addressed and stamped envelope. Letters were posted between 18th December, 1992 and 31st January, 1993 while 31st March, 1993 was kept as dead line to receive the replies.

Out of 250, only 108 questionnaires were returned (45.2%) which included 6 (75%) out of eight members of the IAP Committee on Immunization and 17 (43.6%) out of 39 selected Fellows of the Academy.

## Results

The categories of respondents is shown in *Table I*. The responses were assessed on a percentage basis and the results analyzed (*Table II*).

**TABLE I-Categories of Pediatricians**

A	Medical Teachers, presently serving or former teachers from Medical Colleges	57
	- Senior faculty members	44
	- Junior faculty member	13
B	Private consultants and from non-teaching services, including 2 District Immunization Officers	49
C	Special category-Immunization specialists	2
Total		108

### *Protection Provided by OPV*

Thirty five (32.4%) pediatricians stated that 3 doses of OPV during the first year provided complete protection and of these, 14 (40.0%) give 3 doses, 10 (28.6%) give 4 doses and 11 (31.4%) give 5 doses of OPV during the first year. Sixty nine pediatricians (63.9%) stated that 3 doses of OPV during the first year do not provide complete protection and 10 (14.5%) give 4 doses and 52 (75.4%) give 5 doses while 7 pediatricians (10.1%) still give only 3 doses. Amongst four who gave a qualified statement regarding the efficacy of 3 OPV doses in providing complete protection, one gives 3 doses while 3 give 5 doses of OPV during the first year.

### *Interval Between Two OPV Doses*

This study revealed that 3 pediatricians (2.8%) keep the minimum interval between 2 OPV doses as 3 weeks, 96 (88.9%) as 4 weeks, 7 (6.4%) as 6 weeks and 2 (1.8%) as 6-8 weeks. Thirty nine (36.1%) consider 4 weeks as advisable interval between 2 OPV doses, while 39 (36.1%) consider 4-6 or 6 weeks as advisable interval between two

TABLE II-Summary of Findings

Questions/Response	A (n=57)	B (n=49)	C (n=2)	Total (n=108)	%
3 doses of OPV during the first year	12	9	1	22	20.4
4 doses of OPV during the rust year	12	8	-	20	18.5
5 doses of OPV during the rust year	33	32	1	66	61.1
3 OPV doses provide complete protection	20	15		35	32.4
Give how many doses?					
3	8	6	-	14	40.0
4	6	4		10	28.6
5	6	5	-	11	31.4
3 OPV doses don't provide complete protection	35	33	1	69	63.9
Give how many doses?					
3	4	3		7	10.1
4	6	4		10	14.5
5	25	26	1	52	75.4
Qualified statement*	2	1	1	4	3.7
Give how many doses?					
3			1	1	25.0
4		-			-
5	2	1	-	3	75.0
Minimum interval (weeks) between 2 doses					
3	1	2	-	3	2.8
4	52	42	2	96	88.9
6	3	4	-	8	6.5
6-8	1	1	-	2	1.9
Advisable interval (weeks) between 2 doses					
4	23	14	2	39	36.1
4-6	17	15	-	32	29.6
6	1	6	-	7	6.5
4-8	5	5		10	9.3
6-8	5	3	-	8	7.4
8	6	5	-	11	10.2
>8		1	-	1	0.9

(Contd.)

TABLE II-(Contd.)

Questions/Response	A (n=57)	B (n=49)	C (n=2)	Total (n=108)	%
Number of OPV booster doses					
1	9	3	-	12	11.1
2	41	35	2	78	72.2
3	6	8	-	14	13.0
4	1	3	-	4	3.7
Upper age (years) for OPV booster dose					
2	9	3	-	12	11.1
5	41	40	2	83	76.9
7	3	3	-	6	5.6
10	4	3	-	7	6.5
If child regurgitates or vomits within 1 hour of administration of OPV					
Do you repeat the dose?					
Yes	30	19	-	49	45.4
No	26	29	2	57	52.8
No comments	1	1	-	2	1.9
Because of doubtful potency of OPV (as reported in media) would you recommend extra dose					
Yes	15	16	-	31	28.7
No	39	32	2	73	67.6
No comments	3	1	-	4	3.7
What remedial measures do you suggest					
Insist on potent vaccine	2	1	-	3	
Such vaccine shouldn't be used	2	1	-	3	
Check potency at various levels	3	1		4	
Introduce IPV	5	1	-	6	
Resort to pulse immunization	3	1		4	
Yearly OPV till 10-12 yrs of age	2	3	-	5	
Give extra booster dose between 1 <sup>1/2</sup> years to 4 <sup>1/2</sup> years	1	4	-	5	
Giving/give 4-5 doses during 1st year	6	6	-	12	
Giving/give extra booster doses	2	2	-	4	
Give 1 extra dose at 11-12 month (in addition to 5 doses)	-	1	-	1	

(Contd.)

TABLE II-(Contd.)

Questions/Response	A (n=57)	B (n=49)	C (n=2)	Total (n=108)	%
Repeat the course/dose	3	-	-	3	
Increase the interval between 2 doses upto 8 weeks or more	2	-		2	
Increase the coverage of OPV	1	1	1	3	
BCG booster					
Repeat if failure to takeup after 12 weeks	3	1	-	4	3.7
Booster upto 5 years	15	15	-	30	27.7
Booster beyond 5 years	4	3	-	7	6.5
Measles IMMR booster					
MMR at 15-18 mo	34	25	1	60	55.6
Measles/MMR booster beyond 2 years of age	10	3	1	14	13.0
Intend to start now	2	1	-	3	2.8

A. Medical teachers

B. Non teaching services and private consultants

C. Special category

\* Qualified statement:

Not necessarily

Sometimes

If coverage is wide

doses of OPV; only 30 (27.8%) practice more than 6 weeks interval between two doses of OPV.

#### **OPV "Booster" Doses**

Twelve pediatricians (11.1%) give one "booster" dose of OPV during the second year (UIP Schedule), 78 (72.2%) give two "booster" doses (IAP/EPI Schedule), 14 (13.0%) give 3 "booster" doses while 4 (3.7%) give 4 or more "booster" doses upto the age of 14 years.

In this study there were two or more pediatricians each from five Medical-Colleges. Senior pediatricians from same institu-

tion follow different regimes for number of OPV doses during the first year (3,4 or 5 doses), number of "booster" doses (1,2 or 3) and ages for administering "booster" doses upto 5 years of age.

#### **BCG Vaccine**

Out of 108 pediatricians only four have mentioned that they repeat BCG if BCG vaccination done earlier does not take up till 12 weeks. As this aspect was not included in the questionnaire it should be presumed that many more doctors repeat the procedure in case of inadequate "take".

In this study, 30 pediatricians (27.7%)

advise BCG revaccination to Mantoux negative children upto 5 years of age and 7 (6.48%) advise revaccination upto 16 years of age as second "booster" dose.

### ***Measles/MMR "Booster"***

Sixty pediatricians (55.55%) give MMR vaccine between 15 and 18 months of age and feel that Measles component in MMR vaccine acts as a "booster" dose for the Measles vaccine given earlier.

Fourteen pediatricians (12.96%) give an additional dose of MMR vaccine beyond 2 years of age (5 to 12 years), and 3 have stated that they intend to start giving additional MMR dose. One respondent has advocated giving 3 additional doses of MMR at 5, 10 and 15 years of age.

### **Discussion**

The first report of OPV failure was in 1972(3). Since then thousands of children in India have developed paralytic poliomyelitis despite taking 3 to 4 doses of OPV(4-10). Studies from India(11-13) have shown that increasing the doses of fully potent OPV to 5 or 6 doses improves the seroconversion to 90% or more. In this study only 61.1% give 5 doses during the first year. The IAP Committee on Immunization stated that seroconversion rates with OPV are poor when 4 weeks interval is used. This is because the polio vaccine virus continues to replicate in the intestinal mucosa upto 6-8 weeks during which time it does not allow the uptake of the 2nd dose. Sabin stressed the need for eight weeks interval between doses of OPV(14). The IAP Committee on Immunization has suggested OPV to be given at birth, 2 months, 4 months, 6 months, and along with the Measles vaccine at 8-12 months of age. It was found in this study that 72.2% keep the interval between two doses as 4 to 6 weeks.

It was observed that both natural and BCG induced tuberculin sensitivity tends to wane in the course of time(15,16). This waning could also be associated with some degree of loss of protection against exogenous infection. Seth *et al.* (15) showed that only 26.3% of children given BCG at birth were Mantoux positive in age group of 3-6 years compared to 35.7% in 1-3 year group. The recommendation that children vaccinated at birth be revaccinated at school entry (17,18) was based on the fact that post vaccination tuberculin sensitivity wanes over a period of time.

The IAP Committee on Immunization has stated that revaccination would be needed for all Mantoux negative individuals till atleast 18 years of age. In this study 27.7% advise BCG revaccination to Mantoux negative children upto 5 years of age and 6.5% advise revaccination upto 16 years of age as second booster dose.

The study shows that even senior pediatricians follow different schedules and regimes for almost all the vaccines. Number of OPV doses (between 3 to 5) and the interval advised between two doses during the first year (4-8 weeks or more) and number of "booster" doses (one/two/three and more than three) practiced is variable. Similarly, divergent views are expressed regarding BCG and Measles/MMR vaccines and their "booster" doses. Sometimes similar schedule is not practiced in the same institution causing confusion and concern to the parents.

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