

# Immunization Status of Patients in a Residency-Based Family Practice

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Immunization studies in the United States have revealed that about 35 percent of children are not adequately immunized.

This family practice residency desired to evaluate its immunization patterns, particularly since it was involved in the education of physicians. All of the charts of those patients from birth to 14 years of age were reviewed from July 1, 1974, when the residency accepted its first residents until April 1, 1977, when this evaluation was completed.

The results revealed two patterns. First, the older the patient the less likely that his/her immunizations were up to date. Secondly, the older the patient the more likely that there were no immunization records.

The evaluation resulted in the initiation of many improvements in patient and staff education which, it is hoped, will enable the desired goal of having the immunization up-to-date percentages raised to 95 percent within two years.

Immunization patterns in the United States have been the subject of numerous articles in recent years. McDaniel et al<sup>1</sup> demonstrated that less than 40 percent of active patients of pediatricians had completed suggested immunizations by the age of two years. Simon<sup>2</sup> reported that about 5.3 million out of 13.2 million children between the ages of one and four years have not been immunized against polio, measles, rubella, pertussis, diphtheria, and tetanus. Center for Disease Control statistics<sup>3</sup> indicate that among one to four-year-old children in the United States, 39 percent remain unimmunized against measles, 40 percent against polio, and 27 percent against diphtheria, pertussis, and tetanus (DPT).

Because of continued attention regarding the lack of immunization in school-aged children by medical authorities, the press, and television, this family practice residency decided to evaluate its immunization patterns.

## Methods

The immunization schedules used in this teaching practice since its inception in July 1974, until the completion of this evaluation, April 1, 1977, were very similar to those outlined by Van Reken<sup>4</sup> (Tables 1 and 2). The charts of all children from birth through 14 years of age were extensively studied, and data were recorded regarding immunization status. A total of 325 patient charts were examined. Data were obtained from the inside chart cover which contained an immunization flow sheet; SOAP (Subjective Objective Assessment Plans) progress notes; history and physical examinations; and, finally, from the special im-

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munization data sheet which is an integral part of all the charts in the Family Practice Center. In this Family Practice Center, immunizations are recorded in each of the above categories.

**Results**

The results of the study are tabulated in Table 3 and shown graphically in Figures 1 through 6. In analyzing the results, it is important to understand that the data collected were not necessarily lon-

gitudinal. That is, the children were placed in age groups based on their age at the time the records were examined, so the numbers in each age group do not represent repeated measures on the same patients.

It is evident that two distinct trends were present. First, the older the child, the less likely that his/her immunizations were up to date. Secondly, the older the child, the more likely there were no immunization records at all.

In the evaluation of DPT and TOPV (trivalent oral polio vaccine), it is clear that the first immunization series was reasonably successful (ie, 85 percent and 81 percent of patients in the 7 to 15-month-old group were immunized). However, in the older children, immunization up-to-date percentages dropped significantly to the 50 percent level. The same trends clearly applied to the other immunization categories.

The data also revealed that 38 percent of Family Practice Center patients in the 10 to 14 years-of-age group had no immunization records.

**Discussion**

It is clear that the immunization up-to-date percentages were consistent with the national average, if not slightly worse. What is particularly surprising about this finding is that at the Family Practice Center, immunization has always been approached in a serious manner. A resident seminar has been conducted each year on the current immunization schedules and the need has been

**Table 1. Recommended Schedule for Active Immunization of Normal Infants and Children<sup>5</sup>**

Age	Type of Immunization
2 months	DPT,* TOPV†
4 months	DPT, TOPV
6 months	DPT, TOPV
10 months	TB Test
1 year*†	MMR**
1½ years	DPT, TOPV
4-6 years	DPT, TOPV
14-16 years	Td,‡ and every 10 years thereafter

\*DPT—diphtheria, pertussis, and tetanus toxoids vaccine  
 †TOPV—trivalent oral poliovirus vaccine  
 \*†Immunization for MMR changed from one year to 15 months when new recommendations were instituted  
 \*\*MMR—combined measles-mumps-rubella vaccine  
 ‡Td—combined tetanus and diphtheria toxoids (adult) for those greater than six years.

**Table 2. Primary Immunization for Children Not Immunized in Infancy<sup>5</sup>**

1 through 5 years of age	
First Visit	DPT, TOPV, TB Test
1 month later	MMR
2 months later	DPT, TOPV
4 months later	DPT, TOPV
6-12 months later or preschool	DPT, TOPV
6 years of age and over	
First Visit	Td, TOPV, TB Test
1 month later	MMR
2 months later	Td, TOPV
6-12 months later	Td, TOPV
Age: 14-16 years	Td, and every 10 years thereafter

**Table 3. Immunization Status: Number and Percent of Family Practice Center Patients with Immunization Records, and Number and Percent of Patients for Whom the Center Has No Immunization Records**

		Age					
		3-4 Months	5-6 Months	7-15 Months	16-18 Months	19 months- 9 Years	10 years- 14 Years
DPT at	N	1	9	22	11	124	37
2 months	%	0	77	85	65	63	48
DPT at	N	1	9	22	11	120	37
4 months	%	0	66	81	59	57	47
DPT at	N			22	11	112	37
6 months	%			62	53	54	45
TOPV at	N	1	9	22	11	114	37
2 months	%	0	77	85	65	62	55
TOPV at	N	1	9	22	11	119	37
4 months	%	0	66	81	59	57	53
TOPV at	N			21	11	116	37
6 months	%			54	53	55	50
MMR at	N			22	11	121	37
12 months	%			19	47	55	53
DPT/TOPV	N				11	125	37
Booster at	%				47	52	48
18 months							
DPT/TOPV	N					78	37
Booster at	%					28	43
5 years							
Td	N						37
Booster at	%						38
10-14 years							
No	N	0	0	4	6	59	23
Record	%	0	0	15	35	29	38

stressed for continuous review of the charts to ensure that patients were up to date on immunizations. Residents have been advised to ask and record data about immunization status at episodic visits and at times of physical examinations. Immunization schedules have been posted in the nursing stations, and nurses have been asked to record immunization data when they talked to parents. Histories and physicals were reviewed by faculty, and specific comments made regarding immunization status. In addition, spot checks were made of episodic visits and comments on

immunization again made by faculty. Clearly, these measures have been only effective enough to maintain the national average!

Anecdotally, the record review revealed two parental attitudes about immunization that were surprising. First, one set of parents absolutely refused to have the children immunized because "The needle will hurt the child." Secondly, another set of parents refused to have the children immunized because of religious beliefs: "If God wants our children to be diseased, it is His will." The Family Practice Center staff is working to

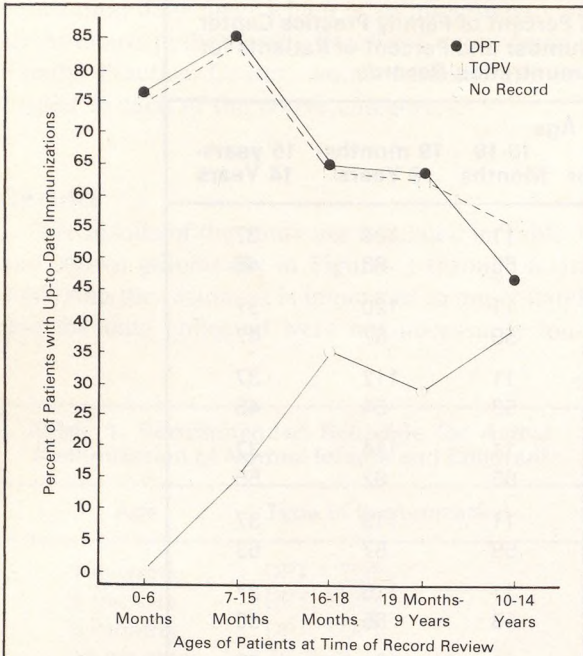


Figure 1. Percent of Family Practice Center patients who have received first DPT and TOPV immunizations, and percent of patients for whom there are no records of these immunizations.

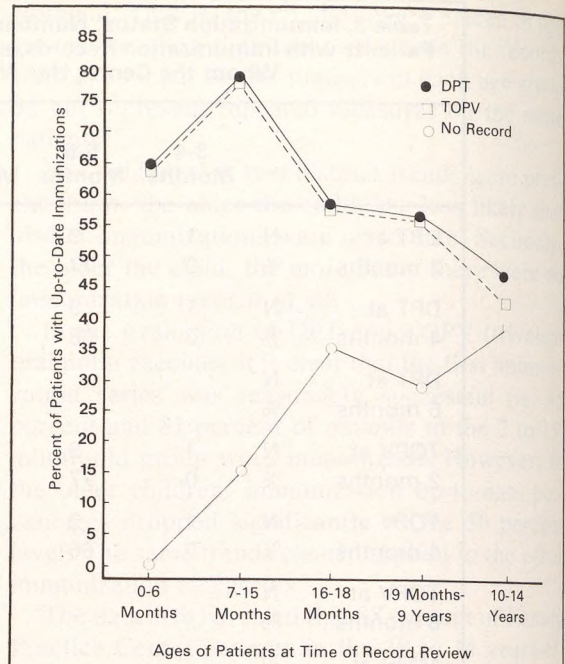


Figure 2. Percent of Family Practice Center patients who have received second DPT and TOPV immunizations, and percent of patients for whom there are no records of these immunizations.

modify these attitudes and, if necessary, pastoral help will be included.

Evaluation of the data points out that the Family Practice Center staff needs to proceed on three fronts.

First, immunization records need to be obtained for patients whose charts lack them. When over 29 percent of a unit's child patients have no immunization records at all, this clearly becomes the first priority.

Secondly, the in-house efforts mentioned earlier probably are necessary, but clearly are not sufficient to do better than match the national average. Better internal systems need to be developed to insure that immunization data are gathered and updated.

Thirdly, parent/patient education and motivation need to be increased. Obviously, the national decline in incidence of disease as a result of immunization programs has reduced parental motivation to insure their children's protection.

The Family Practice Center has set as its goal to have immunization up-to-date percentages of its patients raised to 95 percent within two years. Action steps in the three areas identified above will include the following:

### Obtaining Records

All medical records will be updated through the Medical Records Department and the Family Practice Center Consumer Advisory Council. This Council consists of consumers and staff of the Family Practice Center who meet monthly to discuss mutual problems and issues. All patients will be requested to fill out an immunization record which will be mailed to them in a newsletter from the Consumer Advisory Council. Any replies not received will be followed up by telephone by the Medical Records Department. The newsletter from the Consumer Advisory Council will be sent at least twice yearly to all patients explaining the

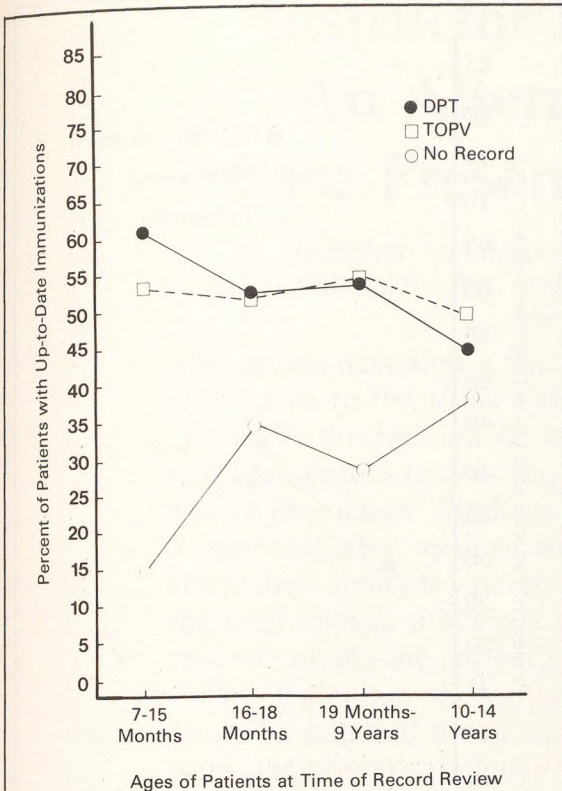


Figure 3. Percent of Family Practice Center patients who have received third DPT and TOPV immunizations, and percent of patients for whom there are no records of these immunizations.

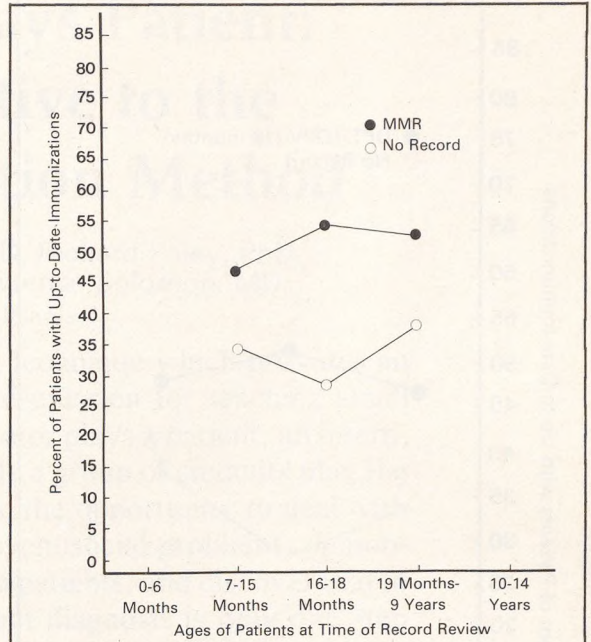


Figure 4. Percent of Family Practice Center patients who have received MMR vaccination, and percent of patients for whom there are no records of these immunizations.

importance of immunization, and those patients who have not given the required data to the Family Practice Center will be asked to do so.

*In-House Efforts*

The Center will continue to hold resident seminars, post schedules, and stress immunization in didactic interactions with residents, nurses, and staff. In addition, the following actions are being taken:

1. Immunization records are being reproduced on distinctly colored paper, and clipped to patients' folders in a prominent place at each visit.
2. Funding is being sought to computerize patient records in order to provide current summaries and descriptive statistics for review without the effort required to gather the data used in this study.

3. In addition to monitoring the progress of this project, the patient activator is designing a pre-post research project to assess educational and motivational variables among patients regarding immunization. The patient activator is a member of the behavioral science faculty who emphasizes patient education.

*Patient/Parent Education*

Patient education will be restructured in several ways.

1. Patient education will be carried out at all office and home visits.
2. Prenatal classes are held regularly in the Family Practice Center. As part of the process, emphasis will be placed on the need for up-to-date immunizations when the child is born.
3. The need for immunizations will be stressed

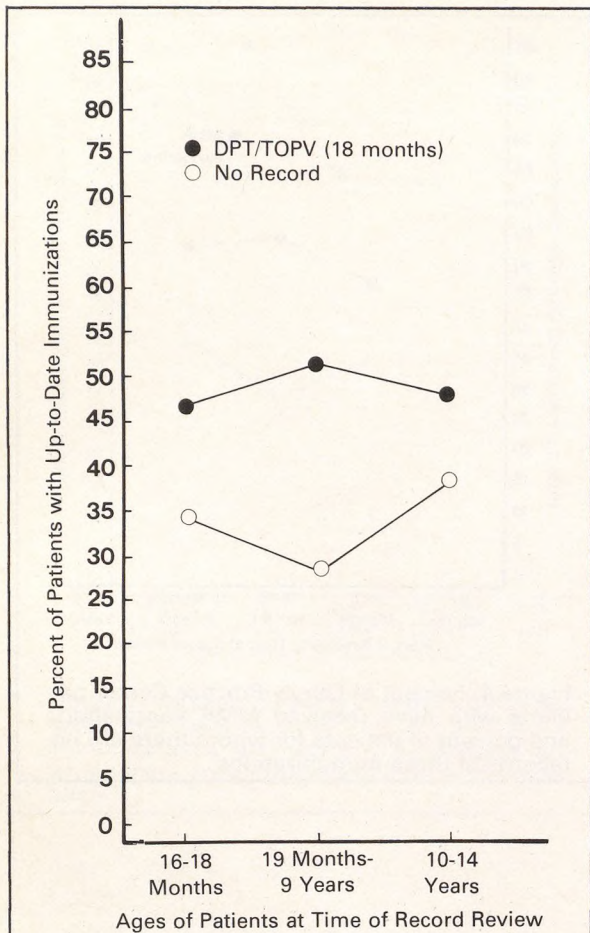


Figure 5. Percent of Family Practice Center patients who have received first DPT/TOPV booster, and percent of patients for whom there are no records of these immunizations.

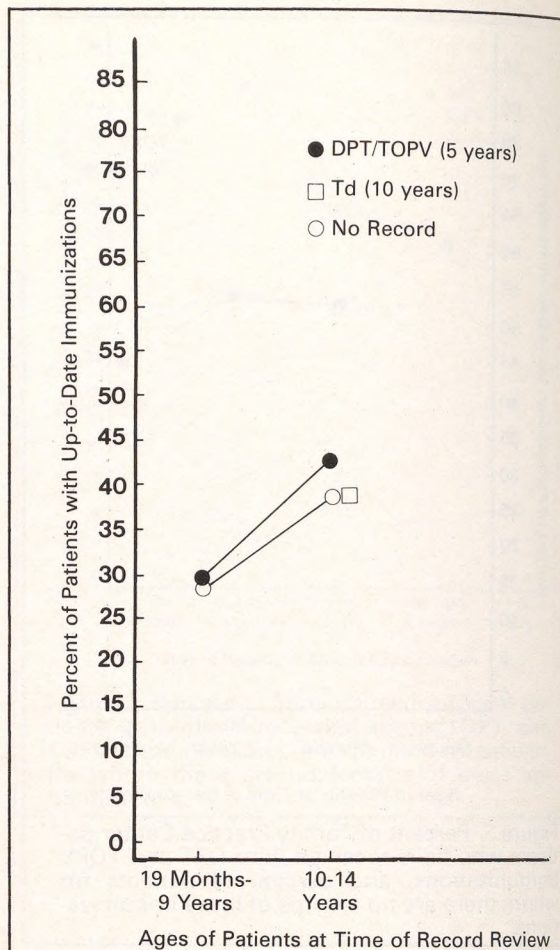


Figure 6. Percent of Family Practice Center patients who have received second DPT/TOPV and third Td booster, and percent of patients for whom there are no records of these immunizations.

to the hospitalized postpartum patient.

4. A video tape of immunization is being prepared for display in the waiting room of the Family Practice Center.

5. Posters and information on immunization practices will be placed in the hospital's Emergency Room, newborn nursery, and pediatric floor.

6. Greater attention will be given by the staff toward increasing parental motivation regarding immunization.

Monitoring of this project will probably indicate changes in emphasis over time. It is hoped that this study will isolate and identify some immunization practices that other family practice res-

idencies will find useful. Certainly the enthusiasm with which the staff has approached the project bodes well for its success.

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