

Use of Aides in Preventing an Outbreak of Diphtheria in a Housing Project

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A CASE of diphtheria gravis reported in a 6-year-old boy living in a Los Angeles housing project on November 18, 1964, aroused fear of an epidemic. Not only do lower socioeconomic populations usually have low immunization levels (1), but diphtheria gravis is unusually virulent and frequently associated with high mortality rates (2).

The possibility of an epidemic was increased by the proximity of the families in the housing project. The 670-unit project covers 34.1 acres. Each building is two-stories, and the units are back to back. Surrounding each building is a continuous yard and play area

which extends the length of the block. Ten families share a yard.

When the child was stricken, the project had 3,100 inhabitants. Each structure housed an average of 20.4 persons. The population included 1,200 children under 6 years old, 800 children between 6 and 16 years, 100 between 17 and 20 years of age, and 1,000 adults. Most of the 6- to 16-year-old group attended school. During the school year of 1963, all school children were offered diphtheria-tetanus toxoid.

The residents did not understand the concept of communicability of the disease or realize the necessity for immunization, treatment, or quarantine. A random sample of 230 units was chosen for the survey to determine the residents' immunization status. These units housed 1,042 persons. There were 442 residents under 6 years, 272 between 6 and 16 years, 35 between 17 and 20, and 293 over 21 years of age. A total of 364 persons had been adequately immunized at the time when the case of diphtheria was reported. Of these, 127 were children under 6, 200 were 6-16 years old, 13 were 17-20, and 4 were over 21. Adequate immunization consisted of

three 0.5 cc. doses of diphtheria toxoid given a month apart followed by a booster within 5 years.

The Plan

As soon as the empirical diagnosis of diphtheria was made, the district health officer called a meeting which was attended by the manager of the housing project, the district health educator, and the director of the community center. It was decided that an all-out effort would be made to immunize at least 80 percent of the children under 6 years of age who would be the primary target group.

To accomplish these goals, the health department representatives agreed to sponsor three clinics in the area at 1-month intervals, furnish all materials needed for immunization, and teach neighborhood aides about the communicability of diphtheria and its control.

The manager of the housing project agreed to provide facilities and janitorial services for all morning clinics and request that the department of recreation and parks provide facilities for afternoon and evening clinics. These arrangements for space were necessary because the project was

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divided by railroad tracks, and the people living on the west side of the railroad tracks preferred the park auditorium to the housing authority auditorium.

The director of the community center would assign neighborhood aides to tell their neighbors in the project about diphtheria and the importance of its control and prevention. For each 10 units there were two aides who worked together. Each neighborhood aide lived in the block where she worked. All of the aides were members of the community center which assigned them to the task of helping to prevent spread of diphtheria.

The Method

As soon as the diagnosis of diphtheria gravis was confirmed by laboratory tests in the index case, members of the patient's household were quarantined and immunization clinics were established for the entire project. Each family was visited by neighborhood aides who explained the nature of diph-

theria and told them that a physician and nurse would come to their home to take specimens and give treatment or injections.

The public health nurse obtained specimens from the nose and throat of all household contacts. The physician rendered treatment in the home.

Even though there was only one diagnosed case when control measures were begun, this child had been in 20 units and had exposed 110 people during his incubation period. Of these 110 exposed persons, positive cultures were reported for 50.

The district health educator and neighborhood aides met at the housing project to plan the immunization clinics. The aides explained that many people had not been immunized because some families could not afford to pay bus fare to take two or more children to the clinic.

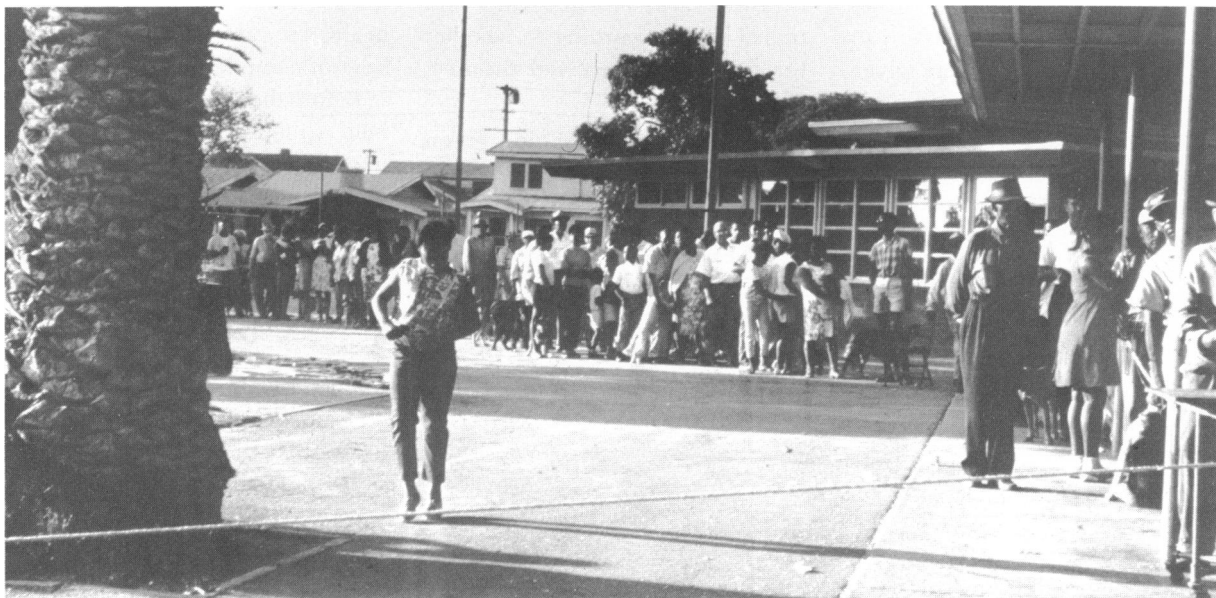
Parents' recall of their children's immunization status was poor. The general unawareness of the importance of disease prevention was a contributing factor, and besides

only one person in the project had ever seen a patient with diphtheria.

The aides discussed the tenants' reluctance to cross the railroad tracks and suggested that clinics be held on both sides of the tracks. The aides also pointed out the need for evening clinics because some parents were working.

The health educator and aides practiced role playing in interviewing techniques so that the aides could learn how to motivate the people in the project to use the clinics. The health educator prompted aides' questions, which she answered, and encouraged the aides to discuss the social and economic problems in the project.

The aides designed forms and flyers which they thought would be effective and selected health education material which they felt would be meaningful to their neighbors. The guide sheet for the immunization survey, the suggested schedule of immunizations, and the forms for recording immunization levels and reminding parents to take their children to



DPT clinic at playground

the clinics were simple and utilitarian. The flyer pointed out that the immunizations were free, gave the time and place of the clinic, stressed the need for at least three injections, and emphasized the urgency of immunizing all children under 6 years of age.

Before the immunization clinics were held, the neighborhood aides decided on a schedule of (a) door-to-door contacts with neighbors, (b) preparation for the clinic, (c) opening and closing hours of the clinics, (d) staffing with aides, (e) collecting and counting registration cards of returnees, and (f) followup of persons who needed to complete their immunizations.

The aides decided to recruit one person on each block to remind parents the day before the clinic. The aides taught the block captains what they had learned about diphtheria and interviewing. The aides and block captains passed out flyers the day before each clinic.

During the clinic sessions, the aides assisted the physician by helping to hold the children and by swabbing the children's arms before the injections were given.



Aide swabbing little girl's arm

They also watched for any bleeding and applied pressure to stop it.

Immediately after each clinic session the aides arranged the registration cards alphabetically and tallied them according to whether the person had received the first,

second, or third injections or boosters. Then they listed the names and addresses of all of the children who needed second, third, or booster injections. The health educator showed the aides how to compile the data.

Before the next clinic, which was held a month later, the neighborhood aides visited all of the parents of the children who needed second, third, or booster injections. The aides explained to the parents that three consecutive injections were necessary for adequate protection against diphtheria. They also explained the purpose of the booster. The aides explained these things in a way that they knew their neighbors would be able to comprehend.

Results

The first immunization clinic resulted in 375 first injections, 25 second injections, 29 third injec-

Table 1.—Doses of diphtheria-pertussis-tetanus toxoid given to project children under 6 years old, December 1964–February 1965

Dose	Date of clinic			Injections
	Dec. 2, 1964	Jan. 6, 1965	Feb. 17, 1965	
First.....	375	59	18	452
Second.....	25	157	118	300
Third.....	29	30	112	171
First booster.....	213	27	8	248
Second booster.....	236	308	0	544
Unknown ¹	32	0	0	32
Total.....	910	581	256	1,747
Total number protected.....	478	365	120	963
Percent protected.....	39.8	30.4	10	80.3

¹ Parent did not know child's immunization status.

tions, 213 first boosters, and 236 second boosters. Parents of 32 children could not remember whether their children were receiving the third injection or the first booster. They knew that the children had received at least two "baby shots."

These records were clarified before the second clinic was held (table 1). At this point 478 or 39.8 percent of the children under 6 were adequately immunized.

The second clinic was conducted 1 month later. Fifty-nine first injections, 157 second injections, 30 third injections, 27 first boosters, and 308 second boosters were given. This clinic resulted in 365 more children under 6 with adequate protection against diphtheria.

At the third clinic 18 first injections, 118 second injections, 112 third injections, and 8 first boosters were given to children under 6 years of age. No second boosters were requested or given. This clinic resulted in 120 more children under 6 with a d e q u a t e protection.

At the end of this series of three clinics held a month apart, 138 children under 2 years old were adequately immunized, 825 children 2-5 were adequately protected, and 92 children 6-16 were adequately immunized. There were 12 aged 17-20 who completed their immunizations, and



Aides reviewing records

15 adults who were adequately immunized (table 2).

Six months after the clinics had been completed the neighborhood aides helped to plan and conduct a followup survey. This time they decided to use a flip chart and questionnaire.

With the help of the health educator, the aides designed forms and questionnaires which they thought were appropriate. The health educator gave the aides

who would be interviewing a guide to help to determine the immunization level of family members for whom parents were unable to locate immunization records.

Each block captain recruited a partner with whom she worked. This partner usually lived on the same block as the block captain. These partners formed one team. Each unit consisted of four blocks so that eight workers surveyed one unit.

Because many residents worked during the day, the interviewing teams decided to work evenings. The aides devised a schedule so that different teams would take turns working at night.

After a sample presentation of an interview and role playing was practiced, the partners canvassed a block at a time until all the residents of that block had been interviewed. They would then move to the next block.

Table 2.—Adequately immunized project residents, by age, February 1965

Age group (years)	Total population in project	Adequately protected	
		Number	Percent of total
Under 6.....	1, 200	963	80. 3
6-16.....	800	92	11. 5
17-20.....	100	12	12. 0
Over 21.....	1, 000	15	1. 5
Total.....	3, 100	1, 082	34. 9

At least two visits were made to each home before the family was dropped. Telephone calls were not used because many residents did not have a telephone. There was a high rate of mobility into and out of the project so that many telephone numbers were inaccurate. After the aides completed their interviewing, they tallied their results.

There were 451 children under 6 years of age who were adequately immunized. Many children who were 5 years of age at the time of the outbreak had reached their sixth birthday during the 6-month period.

A total of 190 families with 374 children under 6 years of age had moved out of the project. Among

the new tenants were 73 unimmunized children under 6 years of age.

Aides' Achievements

Neighborhood aides can make decisions related to local community organization. The decision to hold clinics on both sides of the railroad tracks was based on the aides' knowledge that tenants would not cross the tracks to attend a clinic session.

Recruiting an aide from each block was also the aides' decision. The block captain was well known by the parents in her block. Consequently, parents felt more comfortable in a clinic where a neighbor with whom they could

communicate was registering their children and helping with their children's care.

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BRANCH, GERALDINE B. (County of Los Angeles Health Department): *Use of aides in preventing an outbreak of diphtheria in a housing project. HSMHA Health Reports, Vol. 86, January 1971, pp. 92-96.*

Neighborhood aides helped prevent an epidemic of diphtheria gravis after the disease was diagnosed in a resident of a Los Angeles housing project. The neighborhood aide visited the victim's family to advise them of the nature of the illness and to tell them that a physician and nurse would come to their home to take specimens for tests and give treatment or injections.

The district health educator and neighborhood aides met at the housing project to plan immunization clinics. The aides explained that many project residents had not been immunized because some families could not afford bus fare to take their children to the clinic and the tenants were generally unfamiliar with disease prevention or diphtheria.

It was decided that an all-out effort would be made to provide adequate immunization for 80 percent of the project children under 6 years of age.

The aides pointed out the need for evening clinics because some of the parents worked during the day. The aides also revealed the reluctance of the tenants to cross the railroad tracks which intersected the project and suggested that clinics be held on both sides of the tracks.

By practicing role playing in interviewing techniques with the health educator, the aides learned

to motivate the project's residents to use the clinics. The aides designed forms and flyers which they thought would be meaningful to their neighbors.

Before the immunization clinics were held, the neighborhood aides decided on a schedule of (a) door-to-door contacts with neighbors, (b) preparation for clinic, (c) opening and closing hours of the clinics, (d) staffing the clinics with aides, (e) collecting and counting registration cards of returnees, and (f) followup of persons who needed to complete their immunizations.

Recruiting one person from each block to go door to door in that block to remind parents to take their children to the clinic the following day was the aides' decision.

At the end of the series of three clinics a total of 963 persons under 6 years of age were immunized. There were 825 children from 2 to 6 years old and 138 under 2 years old. Ninety-two of those immunized were school aged, 12 were 17-20, and 15 were adults.

Six months after the series of clinics, the aides helped plan and conduct a followup survey. The aides devised schedules so that different teams would take turns working at night and canvassed a block at a time. After the aides completed their interviewing, they tallied the results.