Technical Reports

Survey of a Medically Indigent Population in South Dallas, Texas, 1969

LOWERY THOMPSON, M.D., JAMES P. LUBY, M.D., JACK A. BARNETT, M.D., HAL J. DEWLETT, M.D., M.P.H., JAN VANDERSLOOT, M.D., LARRY D. REAVIS, Ph.D., and SYDNEY C. REAGAN, Ph.D.

Dr. Thompson is an intern at the University of Utah Affiliated Hospitals, Salt Lake City. Dr. Luby is assistant professor of internal medicine, and Dr. Barnett is professor of internal medicine, University of Texas Southwestern Medical School, Dallas. Dr. Dewlett is director of public health, City of Dallas Public Health Department, and Dr. Vandersloot is an intern in the Tucson Medical Education Program, Tucson, Ariz. Dr. Reavis is director, Crossroads Community Study, Southern Methodist University, and Dr. Reagan is director, Institute of Urban and Environmental Studies, Southern Methodist University. Mrs. Jo Faye Godbey, Southern Methodist University, helped to organize the survey.

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FOUR census tracts in south Dallas, Tex., were surveyed during September and October 1969 to determine the health needs of the predominantly nonwhite residents. The study was the first comprehensive health survey of this area, although a 1964 citywide immunization survey included a sample from these census tracts. The purpose of the survey was to provide a data base for the development of health care delivery systems. It was conducted under contract between the City of Dallas Public Health Department and the Institute of Urban Studies of Southern Methodist University, in cooperation with the University of Texas Southwestern Medical School.

Due to the recent poliomyelitis and diphtheria epidemics in Texas, a primary emphasis of the survey was to determine the immunization status of the residents. Sixty-six cases of poliomyelitis had been reported in Texas in 1966, predominantly in the south and south-central portions of the State (*1*). Diphtheria had been epidemic in Austin and Travis Counties in 1967 and 1968 (*2*). And after completion of our survey in 1970, an extensive diphtheria epidemic (more than 100 cases) occurred in San Antonio. This epidemic aroused national concern.

The survey questionnaire also elicited information concerning visual, hearing, and dental problems, the prevalence of certain chronic disease states (for example, hypertension and diabetes mellitus), nursing care needs, use of health care facilities, and methods of payment for medical care received. Since a major epidemic of St. Louis encephalitis had occurred in Dallas in 1966, the survey also included questions related to housing, particularly those conditions that may predispose to infection by mosquito-borne viruses—open foundation housing, no air conditioning, standing water, and the presence of domestic fowl on the premises (*3*).

Methods and Materials

The Crossroads Community Study, conducted by the Institute of Urban Studies of Southern Methodist University for the City of Dallas in 1969, included interviews with 8,446 families in 11 census tracts concerning a wide range of community problems. Approximately 5,000 families were estimated to reside in census tracts 35 through 38.

Selection of survey population. A sample of 315 families in census tracts 35 through 38 were projected for interview in our study; they were randomly selected from the larger sample that had been interviewed for the Crossroads Community Study (*4*).

Survey questionnaire. Where possible, the questionnaire and instructions to interviewers were modeled after those used in the national immunization survey and the national health survey (*5, 6*). As determined in this manner, the data on immunization enabled comparison with the nationwide statistics compiled in the national immunization survey and with a previous immunization survey conducted by the City of Dallas Public Health Department in 1964 (*5, 7*).

Interviewers. Volunteer medical students from the University of Texas Southwestern Medical School conducted the interviews. Before the survey they were instructed in the techniques of interviewing and the use of the questionnaire. To obtain cooperation, a letter of introduction was mailed to each of the 315 families before the interviewer arrived.

Results—Characteristics of Survey Population

A total of 225 of the 315 projected families were interviewed, a success rate of 71.4 percent. The 225 families were comprised of 688 members. All but one of the families were nonwhite. There were no families with a Spanish surname. Of the 688 persons, 46.2 percent were male and 53.8 percent were female. The median age was 32 years; 37.7 percent of the population was less than 20 years of age, and 18.3 percent was 60 years of age or over. Of the family units, 48.8

Table 1. Poliomyelitis immunization status of children in three surveys, by age group

Survey	Percent adequately immunized [1]			Percent with no OPV or IPV [1] immunization		
	1–4 years	5–9 years	10–14 years	1–4 years	5–9 years	10–14 years
South Dallas health survey, 1969	31.8	63.2	59.7	27.3	4.6	3.0
Dallas immunization survey, 1964, lower socioeconomic area				18.3	[2] 1.82	[2] 1.8
National immunization survey, 1969, U.S. total	67.7	83.6	85.7	10.2	3.2	2.5
National immunization survey, 1969, U.S. nonwhite	53.6	73.6	74.8	18.5	5.8	4.9

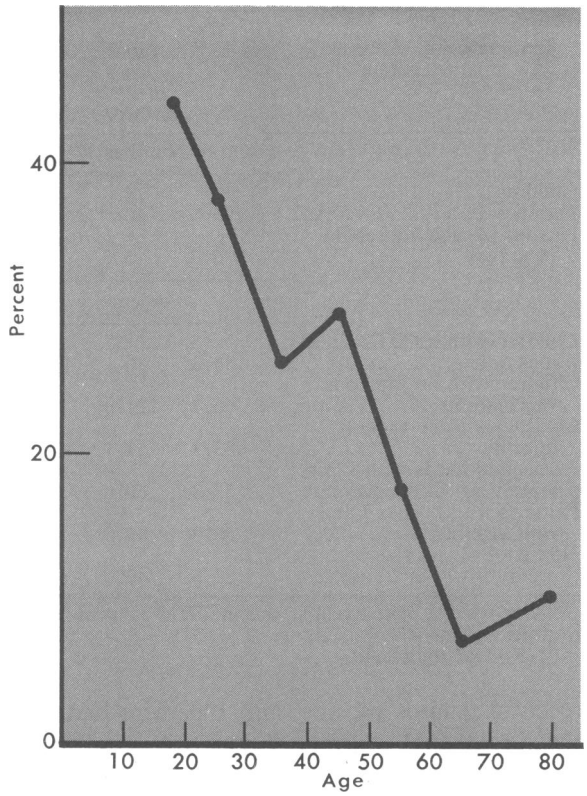
[1] Defined by the Public Health Service Advisory Committee on Immunization Practices as 3 doses of oral poliomyelitis vaccine (OPV) or 3 or more doses of inactivated poliomyelitis vaccine (IPV) in an acceptable primary series.
[2] Percent actually calculated for the age group 5–14 years.

Table 2. Diphtheria, tetanus, pertussis immunization status of children in three surveys, by age group

Survey	Percent with 4 or more doses of DTP			Percent with no DTP immunization		
	1–4 years	5–9 years	10–14 years	1–4 years	5–9 years	10–14 years
South Dallas health survey, 1969	13.6	50.8	56.8	20.4	7.7	3.0
Dallas immunization survey, 1964, lower socioeconomic area	.....	[1] 72.6	72.6	.....	.....	.....
National immunization survey, 1969, U.S. total	37.4	64.1	.....	7.2	3.0	.....
National immunization survey, 1969, U.S. nonwhite	27.2	48.8	.....	15.3	6.2	.....

[1] Percent actually calculated for the age group 5–14 years.

Percent of survey population 15 years old or over with a tetanus or tetanus-diphtheria booster within 7years, by age, 1969



percent consisted of one or two persons, and 11.9 percent were comprised of six or more persons.

Only 6.6 percent of the household heads were in professional, small business, or managerial positions. The common occupations of household heads were service (17.3 percent), semiskilled (15.6 percent), or unskilled (10.7 percent); 17.3 percent were retired persons. Only 5.3 percent of the household heads had graduated from college. An additional 8 percent had 1 to 3 years of college education; 17.3 percent had graduated from high school, and 19.1 percent had 6 years or less of formal education.

Results—Immunization of Children

In tabulating the results of the south Dallas health survey, criteria for adequate and inadequate immunization status have been taken from the recommendations of the Public Health Service Advisory Committee on Immunization Practices (*8*).

Poliomyelitis. In the survey population, 12 of 44 children 1 to 4 years of age, or 27.3 percent, had not received either oral poliomyelitis vaccine or inactivated poliomyelitis vaccine (table 1). Although not strictly comparable, the figure of 27.3 percent may represent an increase over the value of 18.3 percent obtained in the 1964 Dallas immunization survey for the lower socioeconomic area. Only 31.8 percent of children in this age group in our survey were considered adequately immunized. By comparison, 67.7 percent of all children 1 to 4 years of age, and 53.6 percent of nonwhite children in this same age group included in the national immunization survey had adequate immunization. As expected, the immunization status of children 5 to 9 and 10 to 14 years of age improved—related to entry into elementary school.

Before 1970, poliomyelitis immunization of children entering elementary school in Dallas was offered and recommended but not required. Immunization against poliomyelitis was made a mandatory prerequisite to school entry in 1970.

Diphtheria, tetanus, pertussis. To facilitate comparison with the 1964 Dallas immunization survey and the 1969 national immunization survey, the percentage of the population with four or more diphtheria-tetanus-pertussis (DTP) injections and no DTP injections, by age groups, is shown in table 2; 20.4 percent of the children 1 to 4 years in our survey had received no DTP injections. Only 13.6 percent of the children in this age group were considered to be adequately immunized. In contrast, 37.4 percent of all children 1 to 4 years in the national immunization survey had four or more doses of DTP.

The percentage of the survey population 15 years old and over having a tetanus or tetanus-diphtheria booster dose within 7 years is shown in the chart. The percentage decreased with advancing age; only 12.6 percent of the survey population 50 years of age or over had a tetanus or tetanus-diphtheria booster within 7 years.

Smallpox. The following tabulation shows the percentages of children 1 to 14 years old with one or more smallpox vaccinations in the two Dallas surveys.

Survey and age group	*Percent*
1–4 years:	
South Dallas health survey, 1969	54.6
Dallas immunization survey, 1964	53.9
5–9 years:	
South Dallas health survey, 1969	87.8
Dallas immunization survey, 1964	94.2
10–14 years:	
South Dallas health survey, 1969	94.0
Dallas immunization survey, 1964	94.2

The increase among children 5 to 14 years old was caused by the compulsory smallpox vaccination required before entry into elementary school and the ninth grade. The percentage of the survey population vaccinated against smallpox was wholly comparable to values obtained during the 1964 Dallas immunization survey of persons in the lower socioeconomic area. The percentage of persons 15 years of age or over having a smallpox vaccination within 10 years decreased with advancing age. Only 17.7 percent of persons 50 years of age or older said they had been vaccinated against smallpox within 10 years.

Rubeola. A history of rubeola was obtained for 29.6 percent of the children 1 to 4 years of age in the south Dallas survey population (table 3). In contrast, a history of rubeola was obtained for 8.3 percent of all children and 12.8 percent of nonwhite children in this same age group in the national immunization survey. The increased incidence of rubeola in preschool children in south Dallas, as compared with the national statistics, probably reflects the relatively small percentage of children 1 to 9 years of age who were reported to be immunized against rubeola. Beginning in 1970, rubeola immunization has been required in Dallas for all children before they enter elementary school.

Rubella. Since the rubella vaccine was licensed in July 1969, only 1 percent of those surveyed had received the vaccine by fall 1969. Of 137 women in the childbearing age range of 15 to 45 years, 32.1 percent recalled having had rubella. Dallas ran a rubella immunization campaign for children 1 to 10 years old during October 20–23, 1970.

Mumps. The percentage of the health survey population in south Dallas with a history of mumps increased with age. Positive histories of mumps for both men and women increased rapidly in early and middle childhood: 67.3 percent of males aged 15 to 39 years in the survey population had a history of mumps; 1 percent had received mumps vaccine, and 1 percent had both the vaccine and a history of mumps.

Table 4. Characteristics of children 1 to 4 years with no immunization or with adequate immunization against poliomyelitis, 1969 survey

Immunization status and characteristics	No IPV or OPV [1]	3 or more doses of IPV or OPV [1]	Probability
	Number		
Children	12	14	.....
Families	6	10	.....
Persons in each household (average)	6.2	5.7	[2] NS
	Percent		
Children with no DTP injections	58.3	0	<0.01
Children with no smallpox vaccinations	66.7	21.4	.08
Children with no rubeola injections	83.3	57.1	[2] NS
Household heads with 12 or more years of education	33.3	60.0	.....
Families with husband and wife together	50.0	80.0	.....
Households with rats on premises within 30 days	83.3	40.0	.....

[1] Inactivated poliomyelitis vaccine (IPV); oral poliomyelitis vaccine (OPV).
[2] NS=Not significant.

Characteristics of inadequately immunized children 1 to 4 years of age. To obtain further information about inadequately immunized children, a comparison was made between 1- to 4-year-olds who had received no immunization against poliomyelitis and those who had an adequate immunization status against the disease (table 4). The small size of the sample precluded statistically significant differences in many of the categories analyzed. The two-sample chi-square test was used in calculating probability (*P*) values.

The 12 children 1 to 4 years of age with no poliomyelitis immunization tended to be concentrated in a few families. One family had four children, another three, and another two; thus,

Table 3. Rubeola immunization status of children in two surveys, by age group

Survey	Percent with history of infection, by age group (years)			Percent with history of vaccine, by age group (years)		
	1–4 years	5–9 years	10–14 years	1–4 years	5–9 years	10–14 years
South Dallas health survey, 1969	29.6	49.3	61.2	22.8	20.0	10.4
National immunization survey, 1969, U.S. total	8.3	28.2	.....	61.4	.....	.....
National immunization survey, 1969, U.S. nonwhite	12.8	35.0	.....	46.9	48.2	.....

nine of the 12 children were in three families. Furthermore, families of children with no immunization against poliomyelitis in several instances represented difficult social situations. A grandmother cared for the four unimmunized children; neither parent was listed as living at the house. Another family consisted of two elderly grandparents (90 and 66 years of age) caring for a 4-year-old child.

Of the children 1 to 4 years of age with no poliomyelitis immunization, 58.3 percent had received no DTP injections. This figure can be compared to a value of 0 percent for children adequately immunized against poliomyelitis ($P < 0.01$). Children without poliomyelitis immunization also tended not to be immunized against smallpox ($P = 0.08$), as compared with their counterparts. The difference in rubeola immunization status was not significant. Suggestive differences between the immunization status of family groups (none and adequate poliomyelitis immunization) with regard to education level achieved by household head, intact husband-wife teams, and presence of rats on premises were also apparent. The presence of rats might reflect socioeconomic differences between the families.

Results—Health Status of Adults

Tabulation of the survey population's answers to questions concerning health problems of adults follows:

Condition	*Number*	*Percent of total survey population*
Vision problems	247	35.9
Significant hearing impairments	47	6.8
All teeth lost	88	12.8
Visited dentist during past year	237	34.5
Needed constant nursing care	4	.6
Needed partial nursing care	11	1.6
Needed special diet	42	6.1

Visual and hearing problems. The interviewer was instructed to ask two questions: (*a*) does anyone in your family who lives here have an eye condition or vision problem and (*b*) does anyone in the family have deafness or serious trouble hearing with one or both ears? As asked, the questions elicited information on any visual problem and concentrated on significant hearing impairments.

A problem with vision was reported by 35.9 percent of the survey population. The prevalence of visual difficulties increased with age for both men and women; 6.8 percent had a significant hearing impairment. No difference existed between sexes in the percentage of persons of any age group with a hearing defect. The prevalence of hearing problems increased in persons 60 years of age and older, and 20.3 percent of them acknowledged a serious hearing defect.

Dental problems and pattern of dental care. Loss of all teeth was reported by 12.8 percent of the survey population, and 34.5 percent had visited a dentist during the preceding year. The prevalence of complete loss of teeth increased in the population group 50 years of age or over; 33 percent of these persons were affected.

Nursing care and special diets. Four persons, 0.6 percent of the survey sample, required constant nursing care. There were two persons 70 years old and over and one each in the age groups 40 to 49 and 50 to 59. Eleven persons, 1.6 percent, required nursing care only part of the time. Seven of the 11 were 50 years of age or over. Forty-two persons, 6.1 percent, needed special food such as that in diabetic, low-salt, or renal-failure diets.

Pregnancy and medical care. Twenty-one, or 15.3 percent, of the 137 women in the age group 15 to 45 years (the childbearing range) were pregnant at the time of the interview. Six of these women, 28.6 percent, said they had received regular medical care. The remainder, 71.4 percent, stated that they had not received regular medical care. The question as stated in the interview was not sufficiently detailed to allow closer analysis of the medical care received by these persons.

Family planning. Twelve, or 8.8 percent, of the 137 women in the childbearing age range were receiving family planning advice either from a physician or from a clinic at the time of interview. Thirty-five women, 25.6 percent, evinced interest in receiving information or advice regarding family planning. A family planning clinic was in operation at the South Dallas Public Health Center at the time of the survey. Another clinic became operative in south Dallas during September 1970.

Chronic disease states. The following question was asked in the interview: Has anyone in the family had any of these conditions (tuberculosis, rheumatic fever, high blood pressure, heart trouble, stroke, diabetes, epilepsy, cancer, and asthma) during the last 12 months? The question does not allow distinction between the various forms of heart disease and does not permit identification of the specific disorder causing "asthma."

The most common chronic disease state uncovered by the survey was high blood pressure; 86 persons or 12.5 percent were affected (table 5). Of the survey population, 49 persons or 7.1 percent had heart disease, while 34 persons or 4.9 percent had asthma. Diabetes was present in 14 persons, 2 percent; and seven persons, 1 percent, had had a stroke. Tuberculosis, rheumatic fever, and cancer were each present in one person. No person admitted having epilepsy. These data can be compared with the results of a health survey (*9*) of 89 nonwhite and 11 white families in Atlanta, Ga. (table 5). In the Atlanta survey, the incidence of hypertension was equivalent to that found in the south Dallas survey. The incidence of heart disease, diabetes, and cerebrovascular disease found in the Atlanta survey, however, was greater than that found in our study.

Chronic diseases were more common in older than in younger population groups, as were multiple chronic disease states. In the age group 50 years old or over, 60 persons, 27.2 percent, had one chronic disease. Another 31 persons in this age group, 14.7 percent, had two or more chronic diseases, which can be compared with a prevalence of 5.5 percent for multiple chronic disease conditions in the entire south Dallas study population.

The prevalence of high blood pressure and heart disease increased with age. The age distribution of persons with asthma tended to be bimodal, with peaks in childhood and after 40 years of age. The age distribution of persons with asthma indicates, in all probability, that at least two distinct disease processes were represented: (*a*) classic asthma in the younger population as characterized by episodes of wheezing and induced by allergens and (*b*) chronic obstructive pulmonary disease (chronic bronchitis and emphysema) in older persons.

Hepatitis. Four persons, 0.6 percent, had an episode compatible with viral hepatitis during the year preceding the interview. Whether these cases were related epidemiologically in any way is not known.

Table 5. Chronic disease states in two surveys

Condition	Dallas survey, 1969		Atlanta survey [2] (percent)
	Number [1]	Percent	
Total	688	100.0	
Tuberculosis		0.1	
Rheumatic fever	1	.1	
High blood pressure	86	12.5	12.0
Heart trouble	49	7.1	16.0
Stroke	7	1.0	5.0
Diabetes	14	2.0	5.0
Epilepsy	0	0	
Cancer	1	.1	
Asthma	34	4.9	
None	536	77.8	

[1] Total greater than 688 because of multiple chronic disease states in certain persons.
[2] Reference 6.

Results—Other Survey Questions

Usual source of medical care and any source of medicines. The usual sources of immunization and general medical, maternal, emergency, and dental care for the 225 families have been tabulated (table 6). Parkland Memorial Hospital is operated under the Dallas County Hospital District; Texas Children's Hospital is administered under the Children's Medical Center. Both institutions care for indigent persons in Dallas County.

Family units frequently utilized multiple sources in obtaining medicines. Of the families, 63.6 percent secured medicines from the neighborhood pharmacy, 29.3 percent bought from discount pharmacies, and 32 percent purchased from pharmacies at Parkland Memorial Hospital and Texas Children's Hospital.

Methods of payment for medical care received. Family units also used several methods to pay for medical care; 66.7 percent used private funds,

Table 6. Usual sources of medical care of 225 survey families, in percent, 1969

Type of medical care	Usual source of medical care				
	Private physician or dentist	School clinic	Health department	Parkland Memorial or Texas Children's Hospital	Other, unknown, or not applicable
Immunizations	29.3	19.6	18.7	12.9	19.5
General	57.3	.9	1.3	33.8	6.7
Maternal	22.2	1.3	.9	27.1	48.0
Emergency	20.9	.9	0	56.0	22.2
Dental	67.6	1.3	.9	8.0	22.2

and 59.5 percent had private health insurance. Medicare was used by 31.6 percent of survey families, while 6.2 percent had utilized Medicaid. The method of payment was unknown for 6.7 percent of the families.

Housing status. Respondents in 76 families, 33.8 percent, stated that rats had been observed on their premises within the preceding month. We also inquired about housing conditions that may predispose to infection by mosquito-borne viruses, such as St. Louis encephalitis virus. Open foundation housing promotes mosquito breeding in that pools of stagnant water may collect under a house in poorly drained inaccessible sites. Domestic fowl serve as an important host for the virus and hence play a role in the virus transmission cycle.

Responses concerning housing conditions were as follows:

Housing condition	*Family units with condition*	
	Number	*Percent*
Open foundation housing	79	35.1
No air conditioning	131	58.3
Standing water[1]	23	10.2
Domestic fowl (chickens, ducks, other) on premises	9	4.0

[1] Standing water on the premises 1 week after last significant rainfall.

Rabies vaccination status of pet dogs. Ninety-six families owned a total of 137 dogs; 85 of these dogs (62 percent) had been vaccinated against rabies during the preceding 12 months.

Discussion

The survey findings on immunization must be related to the increased numbers of cases of poliomyelitis in south and south-central Texas and the recent diphtheria epidemics in Austin and San Antonio. The survey revealed that immunization against poliomyelitis, diphtheria, pertussis, tetanus, smallpox, and rubeola, particularly in south Dallas children 1 to 4 years of age, most probably compared unfavorably with U.S. national statistics (total and nonwhite population) and possibly indicated a decline in immunization status since 1964. Consequently, it should be noted that, although comparison with the 1964 Dallas immunization survey was attempted, the population in the lower socioeconomic area was not strictly comparable with the 1969 Dallas survey population.

The problem with immunization of preschool children in south Dallas appears to center around a group with generally poor immunization histories, clustered in relatively few families. Difficult social situations were noteworthy in several of these families. Conventional methods of private and public health care probably could not be relied upon to reach these hard-core, unimmunized children. The immunization status of children improved with age, related to their entry into elementary school.

In 1970, new Dallas public school regulations concerning immunization were operative for the first time. These regulations require poliomyelitis, DTP, smallpox and rubella immunizations as an entrance prerequisite, as opposed to diphtheria and smallpox only, as in the recent past. Arrangements have also been made with nurses in the Dallas school system to insure completion of the immunization series once it is started. Consequently, the general immunization level will increase. The new school regulations, however, cannot be expected to reach preschool children, where the lack is most acute. The survey results also pointed to the presence of an inadequately immunized adult population, potentially susceptible to disease if, for example—pertinent to the recent epidemics that occurred in Texas—a significant introduction of the diphtheria bacillus were to occur in this community. Clearly, increased public health education, intensified immunization efforts, and innovative programs that will reach the hard-core unimmunized must be undertaken.

The 1970 Dallas immunization campaign against rubella was effective in reaching school children. Success was less in immunizing preschool children. Another problem concerning rubella, uncovered by the survey and potentially solvable by increased efforts in public health education, should be noted. Only 32.1 percent of the women in the childbearing age range recalled a history of rubella. This figure, in all probability, grossly underestimates the prevalence of rubella immunity as determined by serologic surveys in comparable populations. In part, it may indicate a lack of awareness of the common characteristics of rubella and the potential significance of this infection. Knowledge of the significance of rubella infection in the first trimester of pregnancy was a major reason for the discordance in rates for therapeutic abortion between white and nonwhite populations in Philadelphia during the 1964 epidemic (*10*).

Ancillary evidence related to the immunization status of the south Dallas population should be cited. In June 1966 the South Dallas Public Health Center moved to its new facilities. Since that time its jurisdiction has extended to approximately 22 census tracts, including tracts 35 through 38. Before June 1966 the south Dallas health district included the population of approximately 28 census tracts, including tracts 35 through 38. From January 1962 to August 1970, for children 4 years of age or under, the district recorded the completion of 12,496 DTP and 13,352 poliomyelitis immunization series, 11,511 smallpox vaccinations, and 6,488 rubeola (information available only since 1965) immunizations. Data are not available on the immunizations completed by Texas Children's Hospital or by private medical practitioners. Specific data related to census tracts 35 through 38 alone are not available. These figures can only bear indirectly on the survey findings, which assess the actual completion of immunizations in a specified population.

The survey results disclosed an unmet need for family planning advice and assistance. Only 8.8 percent of the women of childbearing age were receiving advice. Another 35.6 percent evinced interest in obtaining assistance. Dissemination of information concerning the two family planning clinics now operating in south Dallas, as well as other sources, is indicated to satisfy the need revealed by the survey.

In this survey, measurements attempting to estimate the prevalence of certain chronic disease conditions (visual and hearing problems, complete dental loss, presence of specific diseases) were admittedly crude because they were based on subjective recall. They must be considered as beginning efforts to define the prevalence of these conditions in this specific population group. Although limited by these considerations, the survey nevertheless confirms that problems like arterial hypertension are a major public health concern.

The survey families used several health care facilities. Multiple sources were also used to obtain medication. A majority of the families used private funds, at least in partial payment, for some aspect of medical care. The extent of utilizing Medicaid may reflect the relative newness of this program in Texas at the time of the survey.

The 1966 epidemic of St. Louis encephalitis in Dallas was concentrated in nonwhite and white census tracts of the lower socioeconomic class geographically associated with the Trinity River's course through the city. The epidemic resulted in 168 laboratory-confirmed cases, including 20 deaths. There is little published information concerning the prevalence of housing conditions that may predispose to infection by mosquito-borne viruses. Studies have been reported which suggest that open foundation housing, no air conditioning, and inadequate screening may be important factors in determining infection rates in epidemics caused by this virus (*3*).

Addendum

From December 1, 1970, through May 22, 1971, a total of 1,071 cases including three deaths due to rubeola were reported to the City of Dallas Health Department (*11*). Cases were concentrated in census tracts where nonwhites and whites in the lower and middle socioeconomic classes resided. At least 413 cases were in children 4 years of age or younger, 378 cases were in children 5 to 9 years of age, and 160 cases were in children 10 years of age or older. Although measles immunization was made a prerequisite for children entering the Dallas school system in September 1970, the increased number of cases in school-aged children indicates that persons already in school, and therefore not directly subject to this entrance requirement, were often susceptible to measles. The low rate of measles immunization, as uncovered by the present survey, was the major factor accounting for the epidemic in Dallas.

REFERENCES

(*1*) National Communicable Disease Center: Neurotropic viral diseases surveillance: Annual poliomyelitis summary, 1966. Atlanta, Ga., 1967.

(*2*) Dickerson, M. S.: Texas diphtheria rise surveyed: Need seen for communicable disease immunizations. Texas Med 64: 109–111 (1968).

(*3*) Luby, J. P., Sanford, J. P., and Sulkin, S. E.: The epidemiology of St. Louis encephalitis (SLE): A review. *In* Annual review of medicine, edited by A. C. DeGraff, and W. P. Creger. Annual Reviews, Inc., Palo Alto, Calif., 1969, pp. 329–350.

(*4*) Crossroads community study for Dallas, Texas: Preliminary report. Institute of Urban Studies. Southern Methodist University, Dallas, Tex., Dec. 31, 1969.

(*5*) National Communicable Disease Center: United States immunization survey, 1969. Atlanta, Ga., 1970.

(*6*) U.S. Public Health Service: Health survey procedure: Concepts, questionnaire development, and definitions in the health interview survey, 1964.

PHS Publication No. 1000, ser. 1, No. 2. U.S. Government Printing Office, Washington, D.C., May 1964.
(7) Eddins, D. L., Dyal, W. W., Bass, J. W., and Drake, J. W.: Immunization index survey, October 1964, Dallas, Texas. National Communicable Disease Center, Atlanta, Ga. (undated).
(8) National Communicable Disease Center: Recommendations of the Public Health Service Advisory Committee on Immunization Practices, 1969. Atlanta, Ga., 1969.
(9) Marine, W. M., and Bohleber, M. E.: What have we measured? The Atlanta neighborhood health center target area baseline survey. Presented at the annual meeting of the Association of Teachers of Preventive Medicine, Philadelphia, Pa., November 1969.
(10) Ingalls, T. H., Plotkin, S. A., Meyer, H. M., and Parkman, P. D.: Preventive medicine and epidemiology-rubella: Epidemiology, virology and immunology. Am J Med Sci 253: 349–373, 1967.
(11) Center for Disease Control: Morbidity and Mortality Weekly Reports, vol. 20, No. 21. Atlanta, Ga. 1971.

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A health survey was conducted in four predominantly nonwhite census tracts in south Dallas, Tex., during September and October 1969. A sample of 315 families was projected for the survey. Interviews were completed for 225 family units with 688 members. Lack of immunization against poliomyelitis, diphtheria, pertussis, tetanus, smallpox, and rubeola was predominant in preschool age children and clustered in a group of children with generally inadequate immunization histories from a relatively few families. Difficult social situations were apparent in several of these families. The mature adult population was found to be generally susceptible to diphtheria, tetanus, and smallpox. The survey results must be considered in the light of a persistent problem of poliomyelitis in south and south-central Texas and the 1970 diphtheria epidemics in Austin and San Antonio.

The survey estimated the prevalence of certain visual, hearing, and dental problems. Of women in the childbearing age range, 25.6 percent not receiving family planning advice when interviewed evinced an interest in obtaining such assistance. The most common specific chronic disease state acknowledged by the survey population was high blood pressure; 12.5 percent were affected. Data concerning the utilization of health care facilities, sources of medication, and methods of payment for medical care emphasized the multiple character of these arrangements. About 35 percent of the families had houses with open foundations. The prevalence of this housing condition as well as other factors that may predispose to infection with mosquito-borne viruses, such as St. Louis encephalitis virus, was measured by the survey.