Group Attitudes and Information Sources in a Poliovaccine Program

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MUCH recent attention has been focused on public acceptance of the Salk poliomyelitis vaccine program (*1–6*). Part of this interest is the result of the unique nature of the program itself—a major experiment involving the people of an entire Nation as both subjects and interested observers. The confusion and controversy which marked several stages of the program have also added interest. But a large measure of its public health importance results from its value in planning other health programs. If modern medical science can provide the requisites for disease control, and if health administrators design mass programs, then the remaining variable of public opinion and acceptance is all that stands in the way of success. We may learn from the Salk vaccine experience which segments of the population were not reached and why and, most important for the future, how they may be reached.

In implementing health improvement programs, the health officer generally takes for granted that varying degrees of support will be found among the public health population and that there are "unreachable" segments. Usually there is no attempt to reach specific groups; a mass approach is used in the hope of reaching as many people as possible. Various media of communication are used to disseminate information about the value of particular health measures, and it is fondly hoped that the result of such an educational effort will be general acceptance. If, however, it is known in advance which segments of the population are most resistant, and which media of information is the most successful in reaching them, a more comprehensive and direct approach would be possible.

This paper presents data concerning the relative importance of various media of communications in the formation of attitudes regarding vaccination for poliomyelitis among various social groups in two counties in New York. The data are drawn from a larger home interview study of two New York State counties in the spring and summer of 1957. A previous paper presented the findings of parts of the study dealing with vaccination levels by age, sex, social class, and education (*7*).

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The Study Design

The methodology for the study, described in the earlier paper, was based on the home interviews in area probability samples in each of two counties. These were Rensselaer County, semirural, with one large and one small city, and Westchester, urban and suburban, adjoining New York City.

A random sample of subareas designed to yield 1,000 households was selected in each

Table 1. Sources of information on poliomyelitis vaccine of persons classified by social position scores, Rensselaer County, N.Y.

Social position class [1]	Source of information									
	Newspaper		Television		Physician		Radio		School	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	710	76. 3	595	64. 0	349	37. 5	560	60. 2	303	32. 6
I	36	81. 8	23	52. 3	30	68. 2	25	56. 8	23	52. 3
II	45	86. 5	38	73. 1	18	34. 6	33	63. 5	19	36. 5
III	166	81. 8	144	70. 9	100	49. 3	135	66. 5	78	38. 4
IV	255	78. 0	206	63. 0	125	38. 2	194	59. 3	108	33. 0
V	159	69. 7	157	68. 9	71	31. 1	139	31. 0	71	31. 1
Unscored	49	64. 5	27	35. 5	5	6. 6	34	44. 7	4	5. 3

[1] According to the Hollingshead two-factor index of social position.

county, and interviewing began in April 1957 and continued through May of that year. The schedule of questions aimed at obtaining information on the poliomyelitis vaccination history of each member of the household, sociocultural characteristics, opinions as to why individual members of the household and certain other population groups had or had not been vaccinated, and the effects of various media of communication on the decision regarding vaccination.

In all, 930 households representing 3,095 persons were interviewed in Rensselaer County and 904 households with a total of 3,305 persons, in Westchester. Following the interviews, in a comparison of known demographic characteristics of the sample population with those of the general population, we found a close similarity in household size, sex distribution, and age and educational structure.

Findings

Different population groups are differentially exposed to informational media. The recent summary of research sources of information on the vaccine program made by Rosenstock and his associates concludes further that the majority of these studies indicate that they will have to be reached through personal contact rather than through the mass media (*6*). While not negating the value of the mass media in such a program, the summary article does give the impression that the hard-to-reach groups are

Table 2. Sources of information on poliomyelitis vaccine of persons classified by social position scores, Westchester County, N.Y.

Social position class [1]	Source of information									
	Newspaper		Television		Physician		Radio		School	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	651	72. 0	563	62. 3	406	44. 9	353	39. 0	239	26. 4
I	109	82. 6	111	84. 1	78	59. 1	58	43. 9	38	28. 8
II	103	81. 7	110	87. 3	60	47. 6	50	39. 7	48	38. 1
III	204	78. 8	200	77. 2	139	53. 7	108	41. 7	75	29. 0
IV	154	68. 1	104	46. 0	91	40. 3	93	41. 2	53	23. 5
V	52	46. 8	38	34. 2	29	26. 1	26	23. 4	19	17. 1
Unscored	29	58. 0	0	0. 0	9	18. 0	18	36. 0	6	12. 0

[1] According to the Hollingshead two-factor index of social position.

Table 1. Sources of information on poliomyelitis vaccine of persons classified by social position scores, Rensselaer County, N.Y.—Continued

Social position class [1]	Source of information						Total number
	Magazine		Health department		Pamphlet		
	Number	Percent	Number	Percent	Number	Percent	
Total	249	26. 8	254	27. 3	87	9. 4	930
I	21	47. 7	16	36. 4	8	18. 2	44
II	18	34. 6	18	34. 6	5	9. 6	52
III	57	28. 1	73	36. 0	34	16. 7	203
IV	84	25. 7	82	25. 1	20	6. 1	327
V	60	26. 3	56	24. 6	14	6. 1	228
Unscored	9	11. 8	9	11. 8	6	7. 9	76

[1] According to the Hollingshead two-factor index of social position.

best reached through some sort of personal contact. Our data, however, do not support this contention, particularly in the more rural county of Rensselaer.

As part of the schedule of questions, each respondent was asked if he or she had received any information concerning the poliomyelitis vaccine program from certain specified sources of information which included both mass media of communication and personal contacts. Personal contact sources, such as husbands, wives, and friends, appeared to be the least frequent sources of information. In Rensselaer County, for example, only 20.2 percent of all respondents reported information of any degree of importance from husbands, 5.9 percent from wives, 21.8 percent from children, 29.2 percent from friends and neighbors, 8.0 percent from other household members, and 4.1 percent from other persons. Similarly, in Westchester County 14.4 percent reported information from husbands, 3.4 percent from wives, 10.4 percent from children, 28.5 percent from friends and neighbors, 2.6 percent from other household members, and 1.2 percent from other persons.

One source of personal approach reported very frequently was the physician: 37.5 percent of the respondents in Rensselaer County and 44.9 percent of the respondents in Westchester County reported having received information from this source (tables 1 and 2). Since it seems to be specifically the lower economic and social classes who need to be reached we were interested in finding out the general

Table 2. Sources of information on poliomyelitis vaccine of persons classified by social position scores, Westchester County, N.Y.—Continued

Social position class [1]	Source of information						Total number
	Magazine		Health department		Pamphlet		
	Number	Percent	Number	Percent	Number	Percent	
Total	217	24. 0	94	10. 4	50	5. 5	904
I	44	33. 3	14	10. 6	11	8. 3	132
II	31	24. 6	10	7. 9	7	5. 6	126
III	64	24. 7	22	8. 5	13	5. 0	259
IV	60	26. 5	34	15. 0	12	5. 3	226
V	14	12. 6	10	9. 0	5	4. 5	111
Unscored	4	8. 0	4	8. 0	2	4. 0	50

[1] According to the Hollingshead two-factor index of social position.

social class distribution of the respondents who reported information from physicians.

The respondents had been previously classified in socioeconomic and educational status groups by use of the Hollingshead two-factor index of social position, a scale using occupation and education weighted individually and then combined to give an "index of social position score" (*8*). Each member of a household was assigned to one of five social position classes, based upon the index score of the chief wage earner of the household. The social class position of the respondents who reported information of some degree of importance from physicians is presented as part of tables 1 and 2.

As these tables indicate, the higher social position classes more frequently report physicians as sources of information. The percentage of respondents reporting information from physicians in Rensselaer County as a whole is significantly lower than in Westchester County, which has a generally higher socioeconomic grouping. This suggests that the only source of personal approach at all effective in reaching the population in the poliomyelitis vaccine program is the physician, and that even here the amount of information received was not nearly so great among the lower socioeconomic and educational groups who are the "hard-to-reach" segments of the population for whom the personal approach is recommended.

Our data also reveal the continuing efficacy of the conventional mass media of communication in reaching, if not persuading, members of all classes. Communications research has indicated that lower social groups tend to read newspapers, and also to read items of educational, scientific, and health affairs within newspapers, less frequently than the higher groups (*9*). Our data support this conclusion, and in both counties, newspapers as sources of information decrease with social class position (tables 1 and 2). But even in the lowest social class the newspaper is still the most frequently cited medium of information. Almost 70 percent of the respondents in Rensselaer and 47 percent in Westchester in this class named this source.

Television, the second most frequently cited information medium, decreases in importance steadily and significantly as social class position decreases in urban Westchester County. The percentage of class V respondents naming this source was less than half of that in class I. In rural Rensselaer County, however, no decrease is shown.

Again, our data seem to confirm the finding of earlier studies of communications that social classes differ little in exposure to radio. There is little difference from class to class in either county except in the lowest class in Westchester County, which cites this source relatively seldom. The lowest class in Rensselaer reports radio as a source about as often as the other classes and, indeed, more frequently than class I. The most interesting fact relating to radio is the much higher percentage reporting this source in Rensselaer County (60.2 percent) than in Westchester County (39.0 percent).

As might be expected, the magazine as an information medium is much more common in the upper social class groups. The percentage of respondents in Rensselaer who reported information from the health department was almost three times as great as in Westchester, and a higher proportion also cited a school as a source.

Our data indicate that in the two counties pamphlets, such as those distributed by the National Foundation, were a negligible factor, having been most frequently cited by the higher social position classes which already had a high rate of exposure to other sources.

All of these data throw some light on the comparative value of the mass media and "personal" contact in the vaccine program. First, with the exception of the physician, personal contact played little or no role in disseminating information about the program. It might be argued that while personal contact was not extensive as a source, it was more effective than the mass media approach where it did take place. In a separate question we asked our respondents what was the most important source of information figuring in decisions to be vaccinated. Once again the mass media were much more commonly listed. As a matter of fact, the newspaper was listed more frequently than the physician in both counties, and in Rensselaer County, television was listed as often as the physician. Certainly physicians as health authorities are important in

Table 3. Opinions as to whether the Government should provide free vaccine to children, expressed by respondents in Rensselaer County, N.Y., classified by social position score

Social position class [1]	Total number	Government should		Government should in need only		Government should not		Undecided and no opinion	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	930	750	80. 6	112	12. 0	16	1. 7	52	5. 6
I	44	31	70. 5	7	15. 9	3	6. 8	3	6. 8
II	52	41	78. 8	7	13. 5	3	5. 8	1	1. 9
III	203	174	85. 7	18	8. 9	2	1. 0	9	4. 4
IV	327	267	81. 7	37	11. 3	5	1. 5	18	5. 5
V	228	184	80. 7	31	13. 6	1	. 4	12	5. 3
Unknown	76	53	69. 7	12	15. 8	2	2. 6	9	11. 8

[1] According to the Hollingshead two-factor index of social position.

producing a favorable decision toward vaccination, but once again it is the "hard-to-reach" lower class groups who least commonly come in contact with physicians, and they must receive information in order to make a favorable decision.

A second important finding is that with the possible exception of radio and, to a lesser extent, television, the mass media are more commonly cited as sources of information with increase in social class position. The mass media appear by far the most common and reliable means of reaching the largest proportion of all social classes.

Finally, and perhaps most important of all, it appears that the mass media of communication are more commonly cited, particularly in the "hard-to-reach" lower classes in the semi-rural county of Rensselaer than in the more urban Westchester. Newspaper, television, and radio information reached a significantly higher proportion of the lowest two classes in Rensselaer than was reported in Westchester. This is also true when the samples are considered as totalities. In each case, the upstate, largely rural respondents from Rensselaer reported information from newspapers, television, radio, and even magazines more frequently than did the more urbanized Westchesterites.

In assessing the relative value of various media of communication, then, it might be hypothesized that in rural areas, where contact with physicians is less frequent and where the lower population density places greater re-

Table 4. Opinions as to whether the Government should provide free vaccine to children, expressed by respondents in Westchester County, N.Y., classified by social position score

Social position class [1]	Total number	Government should		Government should in need only		Government should not		Undecided and no opinion	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	904	589	65. 2	178	19. 7	72	8. 0	65	7. 2
I	132	74	56. 1	34	25. 8	15	11. 4	9	6. 8
II	126	72	57. 1	26	20. 6	18	14. 3	10	7. 9
III	259	162	62. 5	49	18. 9	22	8. 5	26	10. 0
IV	226	170	75. 2	38	16. 8	9	4. 0	9	4. 0
V	111	79	71. 2	22	19. 8	2	1. 8	8	7. 2
Unknown	50	32	64. 0	9	18. 0	6	12. 0	3	6. 0

[1] According to the Hollingshead two-factor index of social position.

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liance on the mass media for information, the traditional sources of information are still the most valuable. In promoting health education, then, it is most important to know the cultural milieu of the area.

An earlier article describing some of the attitudes expressed by respondents on such questions as why people have or have not been vaccinated, shows important differences between our two dissimilar counties. Some additional data we have processed by social class position again indicate differences among both social classes and rural-urban locality. One of the questions we asked was whether the respondent felt that the Government should or should not provide free vaccine for school-age children. As we expected, the lower middle groups expressed the highest degree of favor toward free vaccine (tables 3 and 4). We had expected, however, that the more urban Westchesterites would express the more "liberal" attitudes toward Government aid while the conservative country dwellers would oppose it. Just the opposite was true. While it was still very small, the proportion of respondents in Westchester County opposing Government-supplied vaccine was four times as great as in Rensselaer. This is even more surprising in view of the fact that the proportion of people vaccinated was higher in Westchester than in Rensselaer. There are many possible explanations for this, including need or political orientation, but it does indicate that regional and rural-urban factors do have a bearing in the formation of attitudes concerning vaccination.

Discussion

At first glance, our findings appear to be at variance with the growing belief that personal contact best reaches the lower income family with little formal education. Our data indicate that the mass media are still the most effective means of reaching the public. We agree, however, that personal contact, particularly with a physician or other health figure, is probably the most effective means of persuading individuals to be vaccinated once they have been reached. While Rensselaer County had a higher rate of reported information from mass media, it was lower than Westchester in reported information from physicians and had a lower rate of vaccination in all social classes. The problem of the vaccine program would seem to be one of motivation rather than of sheer exposure to media.

Exposure to information sources was high in all social classes. But exposure is not enough. The individual's decision as to whether or not to be vaccinated is related to such factors as health attitudes and attitudes toward science. The remaining factor is motivation, for the individual must be convinced that vaccination is a step important enough to overcome the many adverse factors tending to hold him back from seeking vaccination. Getting the information to him is merely an avenue of approach, the important problem is how to convince him—once we have gotten to him—that he should be vaccinated. We agree that personal contacts would probably be the most effective means but even this presents problems. First, we must ask: "personal contact with whom?" The most common contacts are with family, relatives, neighbors, and work associates, and our data suggest that they are poor sources of information. Even if they were excellent sources there is the question of level of information. Each "layman" who becomes a source of information must be educated as to the benefits of vaccination from some previous source. The answer would seem to rest with the private physician in his contact with patients, but the individuals who are most resistant to vaccination are the ones least likely to come in contact with physicians.

The traditional means of communication and dissemination of information still appear to us to be the best methods of getting the information to the public. If our data are indicative of conditions in other areas, particularly rural and semirural, mass media do reach the public, even the lower classes. What is necessary is a new approach in motivating people to seek vaccination; an approach which can be adapted to the existing means of communication.

Summary and Conclusions

After assigning respondents from an area probability sample in two New York State counties into Hollingshead social position

classes, we have attempted to express the differences in reported exposure to various media transmitting information on the Salk vaccine program among these classes and between the two dissimilar counties. We found that personal contact media were least reported, with the exception of the physician, and citing the physician was most common in the upper social class groupings. The mass media of communication—newspapers, television, radio, and to a lesser extent magazines—were the most commonly reported. These media tended to be more often reported as social class position increased. The mass media were much more often reported as sources in Rensselaer County than in Westchester County, particularly in the lowest social class.

We believe that the findings indicate that the mass media reach the public, even the lower social classes, and are still the best way of getting information to the public. What is needed is a new approach, adaptable to these media, toward motivating individuals to seek vaccination.

REFERENCES

(1) Clausen, J. A., Seidenfeld, M. A., and Deasey, L. C.: Parent attitudes toward participation of their children in polio vaccine trials. Am. J. Pub. Health 44: 1526–1536, December 1954.

(2) Deasey, L. C.: Socio-economic status and participation in the poliomyelitis vaccine trials. Am. Social Rev. 21: 185–191, April 1956.

(3) Glasser, M. A.: A study of the public's acceptance of the Salk vaccine program. Am. J. Pub. Health 48: 141–146, February 1958.

(4) Merrill, M. H., Hollister, A. C., Gibbens, S. F., and Haynes, A. W.: Attitudes of Californians toward poliomyelitis vaccination. Am. J. Pub. Health 48: 146–152, February 1958.

(5) Weiss, R. S.: Factors affecting participation in the polio vaccine evaluation experiment. Presented at the annual meeting of the American Sociological Society, September 1955. (Hectographed.)

(6) Rosenstock, I. M., Derryberry, M., and Carriger, B.: Why people fail to seek poliomyelitis vaccination. Pub. Health Rep. 74: 98–103, February 1959.

(7) Ianni, F. A. J., Albrecht, R. M., Boek, W. E., and Polan, A. K.: Age, social, and demographic factors in acceptance of polio vaccination. Pub. Health Rep. 75: 545–555, June 1960.

(8) Hollingshead, A. B.: Two factor index of social position, New Haven, Conn. (Privately printed), 1957.

(9) Lazarsfeld, P. F., and Kendall, P.: The communication behavior of the average American. *In* Mass communications, edited by Wilbur L. Schramm. Urbana, University of Illinois Press, 1949, pp. 402–472.

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Refresher training in laboratory methods will be offered at the Communicable Disease Center, Public Health Service, Atlanta, Ga., during the period October 10, 1960, through April 7, 1961, as listed below. Information and application forms can be obtained from the Laboratory Branch, Communicable Disease Center, Public Health Service, Atlanta, Ga.

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Diagnosis of tuberculosis (855). Oct. 31–Nov. 11; Jan. 30–Feb. 10.
Diagnosis of rabies (826). Nov. 28–Dec. 2; Apr. 3–7.
Bacteriophage typing of staphylococci (856). Dec. 5–9.
Medical mycology (815). Jan. 9–Feb. 3.
Serologic methods in microbiology (941). Jan. 23–Feb. 10.
Study of pulmonary mycoses (817). Feb. 13–24.
Medical bacteriology (838). Feb. 27–Mar. 17.
Veterinary mycology (940). Mar. 6–10.
Diagnosis of viral and rickettsial diseases (820). Mar. 13–31.
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Serologic differentiation of streptococci (854).
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