PUBLIC ATTITUDES TOWARD POLIO VACCINE --

ITS DEVELOPMENT AND DISTRIBUTION

A report based on a nation-wide survey
conducted during the Summer of 1955

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INTRODUCTION

Early in 1955, the National Opinion Research Center received a grant of funds from the Health Information Foundation to conduct a research study on public attitudes and behavior with respect to health and medical care. In June, July and August 1955, 2,379 individuals, representing a cross-section of the U.S. adult population selected by probability sampling methods, were personally interviewed by members of the NORC field staff.

The interview was a comprehensive one, averaging between two and three hours in length. Its purpose was to obtain a rounded picture of people's knowledge, attitudes, experiences and beliefs with respect to health and illness and to a broad range of medical personnel and facilities: physicians, hospitals, pharmacists, dentists, voluntary health insurance, public health facilities, etc. The fact that the Salk polio vaccine coincidentally became headline news during the planning of this survey led the directors of the study to include in the lengthy interview three or four questions dealing specifically with this public health event.

These questions were designed to ascertain whom the public credited for the development of the vaccine, who or what was deemed responsible for the "difficulty and delay in getting this vaccine to the people", and to what extent people were expecting their own children to be inoculated with the vaccine during 1955. The following report concerns itself with the public's answers to those questions.

It should be noted that the report is based on only 2,311 of the total of 2,379 interviews. Processing of the final 68 interviews was not completed until after these tabulations and analyses had been made. Trial tabulations of all 2,379 cases indicate that in no instance would the figures given in this report vary by more than one percent if the additional 68 interviews were included. For this reason it was not deemed worthwhile to repeat all of the computations for the full

sample. The figures presented here may be regarded as final, although 3% of the cases were excluded from tabulation.

The statistical tables show the number of cases ("N") on which each set of percentages is based. These "N's" will be found to vary slightly from one table to another, since there were always a few cases in which the question was not asked or the answer was not ascertainable. Thus, Table 1 is based on 2,308 cases, rather than the total 2,311, because in three instances the question was inadvertently omitted by the interviewer. In Table 2, the total number of cases in the three education groups adds to 2,306 instead of 2,308, since in two cases the respondent's education was not ascertained.

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CREDIT FOR POLIO VACCINE DEVELOPMENT

Only about one person in four spontaneously mentioned the National Foundation for Infantile Paralysis, when asked to name the groups or individuals who had most to do with developing the polio vaccine. As shown in Table 1, the answers scattered rather widely, with no particular group receiving credit from more than 40% of the population.

TABLE 1

"Now a question about the new vaccine that has been developed against polio. What groups or individuals do you think had the most to do with developing this new vaccine? (Anyone else?)"

	Percent of Total Sample N=2308
NFIP, March of Dimes, Polio fund, drive, campaign, etc.	23%
Dr. Salk, Salk and his associates	38
Scientists, researchers (general)	22
Doctors, AMA, Medical profession, research doctors, etc. . . .	18
The government, Public Health, Mrs. Hobby, Dr. Scheele.	6
Universities, Colleges, Univ. of Michigan, univ. research . . .	5
Pharmaceutical manufacturers, chemical, biological houses . . .	4
Research laboratories, medical labs, scientists in such labs. .	4
Miscellaneous: Shriners, Rockefeller Foundation, Private businesses, Hospitals, Sister Kenny, etc.	6
Don't know, vague and irrelevant responses.	30
Some people named more than one group.	156%

Credit for mentioning the NFIP was assigned rather broadly, so that anyone who referred to the "Polio Fund", "Polio research organization", "March of Dimes", "polio drives", "funds from the campaign", etc., was classified in that group. Indeed, since it was felt that the important issue was whether or not people realized that public donations were involved, even such vague responses as "the public by their contributions" were grouped with the NFIP replies. The 23% figure shown in Table 1, therefore, probably represents a maximum estimate of the number of people who spontaneously thought of the part played by the NFIP in the vaccine's development.

The largest group of responses referred to Dr. Salk or to Dr. Salk and his associates, though it will be noticed that considerably fewer than half the people mentioned even his name. About 10% mentioned both Dr. Salk and the NFIP, while about half of the public credited neither Salk nor the Foundation. Substantial portions of the public credited the vaccine development to "scientists", "doctors" or "researchers", without being able to specify in any way just who employed them or supported their work. The government, the drug companies and the universities were mentioned only occasionally. Almost a third of the public had no ideas at all on the question.

It might be mentioned that in response to another question during the interview, which asked people who was mainly responsible for the development of the "wonder drugs" such as sulfa, penicillin, etc., the public gave strikingly similar replies. Twenty-nine percent had no answer to this question, and the drug manufacturers were mentioned by only 11%. Large numbers again were inclined to credit the development of these drugs to vague and unknown "researchers", "doctors" and "scientists."

Obviously, the above figures understate public knowledge to a certain extent, since people were asked to reply without any hints or suggestions on the part of the interviewer. It is certain that if they had been asked, "Did the NFIP have anything to do with the development of this vaccine?", far more than 23% would have answered "Yes." Yet the ability to provide a spontaneous, unsuggested answer seems a more reasonable measure of a person's information in this case, and especially since interviewers were asked to follow up each reply by asking, "Anyone else?", in order to elicit every group the respondent could think of. It is well known that when the more direct type of question is asked, many people will claim awareness which is not truly theirs, thus producing a spurious measure of the state of public knowledge.

The Effects of Education

The higher a person's formal education the more likely he was to name some group as responsible for the vaccine, and the more likely he was to mention specifically the NFIP. Half of the group with eight years' schooling or less answered "Don't know" to the question, in contrast to only 21% of the high school group and only 10% of the college educated. Only 9% of the grammar school group credited the NFIP (or the March of Dimes, or fund drives) for the vaccine, in contrast to 28% of the high school group and 39% of the college educated. Table 2 shows the detailed distribution of replies to this question among respondents of varying educational level.

TABLE 2

CREDIT FOR VACCINE DEVELOPMENT BY EDUCATION

	All Respondents N=2308	Attended College N=384	High School Only N=1072	Grammar School Only N=850
NFIP	23%	39%	28%	9%
Dr. Salk	38	48	43	27
(NFIP or Salk)	(51)	(69)	(59)	(32)
Scientists	22	33	25	12
Doctors	18	22	19	13
Government	6	8	7	5
Universities	5	11	4	2
Pharmaceutical mfrs.	4	8	3	2
Laboratories	4	6	5	2
Miscellaneous	6	10	7	3
Don't know	30	10	21	51
Some respondents gave more than one answer	156%	195%	162%	126%

It is of interest that knowledge of the NFIP contribution to the vaccine's development is more highly related to education than is knowledge of Dr. Salk's contribution, or of that of most of the other categories listed. Mention of Dr. Salk increases from 27% to 48% as one goes up the educational ladder, while mention of NFIP more than quadruples, from 9% to 39%. Furthermore, qualitative analysis of the

verbatim answers reveals that the types of NFIP mentions vary from one educational level to the other. Whereas the less educated who were classified in this category are more likely to speak of the March of Dimes and fund-raising activities in general, respondents who attended college much more often name the Foundation itself.

Persons who have some familiarity with polio, in the sense that they can name one or more symptoms of the disease, are also better informed about the vaccine's development and more likely to credit the NFIP with some role in it. Table 3 shows that this remains true even when the effects of formal education are controlled. Within each of the three education groups, it may be seen that as knowledge of polio symptoms increases, the proportion answering "Don't know" decreases and the proportion mentioning NFIP increases.

TABLE 3

CREDIT FOR VACCINE DEVELOPMENT BY EDUCATION AND KNOWLEDGE OF POLIO SYMPTOMS

	N	Mention NFIP	Mention Dr. Salk but Not NFIP	No Mention of NFIP or Salk but Mention Some Other Group	Don't Know Whom to Credit	
ATTENDED COLLEGE						
Knew no symptoms	(48)	29%	25	21	25	=100%
Knew one or two symptoms . .	(116)	33%	29	28	10	
Knew three or more symptoms.	(220)	45%	30	19	6	
HIGH SCHOOL ONLY						
Knew no symptoms	(225)	14%	24	24	38	=100%
Knew one or two symptoms . .	(378)	25%	37	19	19	
Knew three or more symptoms.	(470)	38%	29	20	13	
GRAMMAR SCHOOL ONLY						
Knew no symptoms	(460)	4%	17	16	63	=100%
Knew one or two symptoms . .	(236)	11%	30	17	42	
Knew three or more symptoms.	(153)	20%	31	23	26	

But formal education remains a most potent determinant of information about the NFIP's contribution to the vaccine's development. Given equivalent knowledge of

polio symptoms, it is always the better educated who are more likely to credit the NFIP. And indeed it may be noted that college educated persons who can not name even one symptom of the disease are nevertheless more likely to mention NFIP in connection with the vaccine than are grammar school educated persons who can name three or more symptoms.

It would be expected that parents of children in the 3-14 age group would be more concerned about polio, more knowledgeable about it, and thus more likely to credit NFIP with the development of the vaccine. This expectation is borne out by tabulations, which need not be shown here, indicating that such parents generally mention NFIP somewhat more frequently, even when education and knowledge of polio symptoms are controlled for each group. But the relationship between personal concern with polio and awareness of NFIP's role in the vaccine's development is less marked than one might suppose, and education remains a much more powerful determinant of awareness. Further doubt is cast on the importance of the relationship by the finding that persons who have accurate knowledge of cancer symptoms are also more knowledgeable concerning polio symptoms and more likely to credit NFIP for the development of the vaccine. Indeed, persons who can name two or more cancer symptoms are more likely to know about NFIP's role, even if they have no children in the affected age group, than are parents of such children who are ignorant of cancer symptoms.

Awareness of NFIP's role in the vaccine's development thus appears to be more closely related to formal education and to knowledge about health matters in general than to any special interest in or concern about polio as such.

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THE DELAY IN DISTRIBUTION OF THE VACCINE

When asked to say who or what, in their belief, was responsible for the delay in distributing the vaccine, the public divided fairly evenly into three main groups. About a third spontaneously blamed someone or charged mishandling of the program somewhere along the line. Another third were able to mention some factual reason for the delay, or assigned responsibility to some particular group or individual, but with no particular element of censure in their response. And a further third of the population said they just didn't know and couldn't guess who or what might be responsible. The size of the latter group seems consistent with the fact that 30% confessed total ignorance of the vaccine's origin and development on the preceding question. Table 4 shows the actual wording of the question and the percentage distribution of the major groups.

TABLE 4

"As you may know, there has been some difficulty and delay in getting this vaccine to the people. Who or what do you think has been chiefly responsible for this? (Why? In what way?)"

	Percent of Total Sample N=2271
Some element of blame in the response	34%
Someone or something mentioned, but no element of blame . . .	28
Explicit statement that no one could be blamed.	6
Don't know, no idea, haven't followed it.	32
	100%

A study of the verbatim responses shows rather clearly that the public had no fixed ideas on the matter during the early summer of 1955. There did seem to be fairly widespread awareness of some difficulty, but few respondents gave evidence of having thought much about it or of being particularly interested in assigning responsibility for the state of affairs. Aside from the 32% who had no ideas at all

on the subject, a great many others were willing to make a guess only after persistent prodding by the interviewer. As Table 4 shows, only a third of the public even mildly censured any individual or group, and the majority of the replies gave no indication of strong feelings.

The lack of crystallization of public opinion on the matter is revealed also by the striking variability of the responses. No one or two analyses of the situation were credited by any appreciable proportion of the public. Rather, a multitude of reasons, causes, groups, individuals, motivations and events were referred to in the replies, and none of them was mentioned by more than a small minority of the public. In part, this wide variability in the response arises from the nature of the question asked -- which offered no hints or suggestions, and was deliberately phrased to encourage a free response in whatever terms were salient to the individual. In part, too, the variability probably reflects the wide range of judgments conveyed by the mass media during the period. But whatever the reasons, it is clear that no consensus existed on the matter and that the public was somewhat less indignant and aroused than was often believed at the time.

A few examples of responses which were coded as having some element of blame in them may illustrate the vagueness, as well as the variability of the replies.

> "Somebody bungled it up somewhere, but I don't know who"
>
> "Lack of proper inspection at source. Like the Cutter Lab, they claim the government inspectors held it up. There were not enough inspectors on the job -- not enough inspectors"
>
> "Oveta Hobby is not a competent enough director"
>
> "They should have been sure of having plenty before they began"
>
> "It seems like the Foundation had everything going good and then the government came in and there's not too much cooperation between the govt and the foundation. I feel it was the government health service messing it up"

"They hurried the marketing of the vaccine after discovery. I think it should have been developed more before the publicity. I think they jumped the gun before they were ready"

"I don't know unless it's somebody trying to get a bigger haul out of it"

"I don't think any one group; the people that developed it. Still Greek to me. I think they gave the wrong amount of publicity to it. Too much publicity"

"Probably a lot of politics involved"

"After reading how they handled it in Canada I'd say the govt is responsible for not taking it over and distributing it"

"Cutter was too impatient. They made up a batch ahead of time and it fermented"

"Public opinion. They just cry because a few kids get polio"

"Newspapers. I think they caused a lot of hysteria among us because of a few getting it after they were vaccinated."

"Well I don't think Eisenhower had anything to do with it. Maybe these laboratories who made the bad stuff"

"The public. No two people can get the same idea. They are too ready to blame someone else"

"Congress can't make up its mind who should get it or pay how much"

"Politics. Politicians took over when it should be worked out by doctors and scientists"

"Mostly they started to make a racket out of it. It fell into the hands of people that cut it down and started cheating it. Just typical gangsters"

"Perhaps due to the time of year. The polio season started earlier this year. Too much haste"

"Basil O'Connor. The Polio Foundation pushed it too fast, tried to get it out for Roosevelt's birthday. They should have tested it more"

"The doctors are trying to get it and charge a high fee for it. Poor people are the ones that need the shots too"

"Wasn't there a lot of black market going on? They were selling it somewhere. I forget what I read about it"

"According to the papers it's been politics but you can't believe all you read"

"Politicians who want the votes and are fighting to distribute it where it will bring the most votes"

"Drug companies were unwilling to take the gamble until it was proven. Our Secretary of Health was lax and did not think it was important"

"Rackets -- somebody trying to make a quick buck. I could not say who because I haven't read enough to really understand"

"Manufacturers were responsible. They were trying to put out as much as possible as fast as possible to make money"

These examples, which represent not the most colorful responses, but rather a fairly representative sampling of the replies which were coded as "blaming someone", are cited at such length to indicate not only the vagueness and the extreme variability of the answers, but also the lack of intense feeling which is characteristic of many who were classified in this group. While some of the replies indicate strong indignation and resentment, the majority of those whose responses were classified as censorious do not seem to show any great personal involvement or concern.

The variability and lack of crystallization of public opinion, which was broadly sketched in the sample replies just quoted, is demonstrated statistically in Table 5, which shows (A) the proportion who mentioned any particular group as responsible, and (B) the distribution of blame and responsibility among the various groups mentioned.

TABLE 5

"Who. . .do you think has been chiefly responsible for this (difficulty and delay in getting this vaccine to the people)?"

A. PROPORTION BLAMING OR MENTIONING ANY GROUP

	Percent of Total Sample N=2271
Blame some group or agency.	34%
Mention some group or agency but no blame attached.	17
Total mentioning any group or agency.	51%
Reason for difficulty given, but no group or agency mentioned and no blame attached	17
Don't know, no idea	32
	100%

B. DISTRIBUTION OF MENTIONS AND BLAME

	Percent of Total Sample		
	Blaming Each Group	Mentioning Group, But Not Blaming It	Total Mentions
The Federal government, Public Health Service, Dr. Scheele, Mrs. Hobby, Eisenhower, the Republicans, the administration, etc.	9%	11%	20%
Politicians, Congress, the Democrats.	2	**	2
Polio Foundation, Basil O'Connor, March of Dimes	*	*	1
Doctors, AMA, Medical societies	1	4	5
Cutter laboratories, a few laboratories	6	5	11
Drug manufacturers, producers, laboratories, in general.	5	6	11
The general public.	2	**	2
Miscellaneous specific groups: Newspapers, County health department, Dr. Salk, etc	2	4	6
Unidentified "they": someone at fault but no particular group or person specified.	12	-	12

* Less than half of one percent
** Not tabulated separately

It should be noticed first (Table A) that only half the population blamed anyone or even mentioned any individual, group, agency or institution as responsible for the delays and difficulties. The remainder either said they had no idea, or gave some factual reason for the situation (such as "The demand is greater than the supply") but without specifying who was responsible. A second point of interest (Table B, third column) is that no single group or agency was referred to by more than 20% of the public when they answered this question, whether or not any blame was attached.

Next (Table B, first column), it may be seen that what blame and censure there were fell more often on vague or unspecified groups than on any specific individual or agency. Twelve percent of the public (about a third of those who blamed anyone) could not identify the object of their blame. Instead, they referred to some anonymous "they" as responsible for the situation. Two frequent symbols employed in these vague explanations were "politics" and "black market" or "racketeering", but it was generally not possible to determine just who was seen as involved in these undesirable activities.

Other responses with vague referents were fairly explicit as to what was done improperly, but were not clear as to who was responsible for the situation. Thus, "They got it out in too much of a hurry," "Whoever was in charge should have seen that it was properly tested," "They are letting the doctors make too much money on it," "They gave it too much publicity," etc. But in spite of persistent probing by the interviewers, these respondents too were unable to specify just who "they" actually were.

The specific group mentioned most frequently as not having played its proper role in the vaccine situation was the Federal government. Although there were occasional references to Mrs. Hobby, the Department of Health, Education and Welfare,

or the Public Health Service, most of the 9% who were classified in this category referred only vaguely to "the government." About half of them volunteered that the government should have supervised production more stringently, should have exercised greater control in general, should have foreseen the problems, etc., but frequently it is not clear whether the respondent actually blamed the government, or someone else for not permitting greater government participation in the program. About 1% of the public contended that the government had played too active a part and should have stayed out of it. Of the remaining three or four percent who criticized the government, a few made miscellaneous specific criticisms involving such things as governmental bias in favor of special interest groups or lack of coordination between the government and other interested parties, but the majority of these merely named the government or someone in it, without explaining in what way they were at fault: "Mrs. Hobby didn't handle it right," "The government made things go wrong," "Someone in the government."

The only other specific groups besides the government which were blamed with any appreciable frequency were the Cutter Laboratories (6% of the public), and the drug manufacturers in general (5%). These groups were generally criticized for too hasty release of the vaccine, for faulty testing procedures, for having made an error in the production of the vaccine, or for general carelessness.

Less than one half of one percent of the public explicitly volunteered that the NFIP was at fault in the situation. In fact, only about half of one percent mentioned the NFIP in their response to this question -- either favorably, unfavorably, or in a neutral way. The few who did criticize the Foundation mentioned premature and excessive publicity, and premature administration of the vaccine as the cause of the problem. But it is clear that the NFIP hardly entered at all into the public's thinking on the matter.

Table 6 summarizes the reasons for the situation, as seen by the critics. It will be noticed again that the answers distribute widely, with no single reason attracting the support of any large group.

TABLE 6

"What. . .do you think has been chiefly responsible for this (difficulty and delay in getting this vaccine to the people)?"

	Percent of Total Sample
Government interference	1%
Inadequate government supervision	5
Premature release, it was rushed too fast	7
Carelessness, improper precautions	5
Mistake made in vaccine production	3
Politics	5
Greed, jealousy, black market, racketeering	5
Too much publicity	2
Miscellaneous specific reasons	5
Blame somebody but no reason given	4
Some people gave more than one reason	42%

So much for the group (one-third of the public) who were classified as blaming someone for the situation. What of the remainder? As we have seen, approximately another third of the population had no ideas or explanation whatever for "the difficulty and delay in getting this vaccine to the people". Among the other one-third -- those who assigned some reason or responsibility for the delay, but without blaming anyone for it -- several themes predominated.

About a quarter of these responses were primarily concerned with a shortage of the vaccine: "The demand is greater than the supply," "Too many children need it," "It was not available in certain areas," etc. There was usually no reference to the Cutter incident in such responses.

Another large group of neutral responses were simply matter-of-fact statements to the effect that the government was holding up distribution until the safety or

effectiveness of the vaccine could be determined. This action by the government was generally approved by those giving this response.

A third frequent neutral response concerned the lack of public confidence in the vaccine. These replies were usually simple descriptions of public reaction to the faulty batch of vaccine, with no explicit blame attached either to the producers of the vaccine or to the public. Six percent of the public stated only that the delay was inevitable, and these usually stressed the recency of the discovery and the short time available to shift from laboratory to mass production.

The vagueness, confusion and ignorance which the public revealed when it attempted to assign responsibility for the vaccine delay should be clearly distinguished from the actual state of public awareness of the situation. For while our survey questions did not attempt to measure the public's general knowledge of the events, it is clear that the Salk vaccine story claimed an unusual degree of attention during the spring and summer of 1955.

Thus, in their attempts to say who or what was responsible for the delay, one-third of the public (and half of those who gave any opinion at all) referred explicitly to the fact that some of the vaccine had proved faulty: "It isn't safe yet," "The Cutter incident," "The live virus was left in," "It didn't work too good," "They weren't making it right," etc. Another 10% of the public implied such awareness when they said the vaccine was still experimental, was being held up for further testing, etc. In answering our question, therefore, 44% of the total public, and two-thirds of those with opinions, referred in one way or another to the possible danger in the use of the vaccine at the time and to the need for further testing.

This is an unusually high proportion of the public to be aware of any particular news event, and it is especially impressive when we consider that ours was a "free-answer" question which offered the respondent no hints, suggestions or possible

alternatives to aid him in his reply. It may be assumed that many other respondents also had the same knowledge of the events, but simply did not happen to volunteer the information when they gave their reply.

One must not assume from the vagueness of the answere reported in Table 5, therefore, that the public was disinterested in the vaccine, apathetic about the course of the program, or ignorant of the events reported in the press and radio. All the evidence indicates that they followed the news closely and were generally aware of the more significant aspects of the situation. It was only when they tried to explain who or what was responsible for the state of affairs that their confusion became evident.

Differences Among Population Sub-Groups

As in the case of knowledge of the development of the vaccine, there were marked differences according to education in the replies to the question concerning responsibility for the vaccine delay. As shown in Table 7, eight out of nine college-educated respondents had an opinion on the question, but only half of the least educated respondents could give any answer but "Don't know."

TABLE 7

RESPONSIBILITY FOR VACCINE DELAY
BY EDUCATION

	Total N=2271	Attended College N=381	High School Only N=1059	Grammar School Only N=829
Blame someone for situation	34%	53%	36%	21%
Assign a cause, but no element of blame .	28	25	31	25
Explicit statement no one is to blame . .	6	11	7	4
Don't know, haven't followed it	32	11	26	50
	100%	100%	100%	100%

Besides being more likely to have an opinion on the matter, the educated were also considerably more likely to blame someone for the situation. The differences along the top row of the table tend to magnify this tendency because of the varying proportions answering "Don't know", but even when the "Don't know" groups are excluded, the differences remain. Thus, among those expressing opinions, 59% of the college group blamed someone, as compared to 49% of the high school, and 42% of the grammar school groups.

Analysis of other sub-groups of the population with respect to their willingness to blame somebody for the vaccine delay does little more than emphasize the role of formal education. Over-all, parents of young children, for example, were somewhat more likely to have opinions on the question than non-parents were, but 88% of educated non-parents could answer the question, while only 57% of the less educated parents could give any response but "Don't know." The parents were somewhat inclined to give more neutral and fewer critical answers than the non-parents, but the differences were small and inconsistent.

Political ideology seems of small importance, too, in determining attitudes toward the vaccine delay. Political "independents" and Republicans were actually more likely to cast blame on somebody than Democrats were, although this finding too reflects chiefly the higher educational attainments of the former groups. Thirteen percent of the independents, 8% of the Republicans, and 8% of the Democrats placed specific blame on the government and/or Administration for the difficulties.

The combined effects of formal education and specific knowledge are shown in Table 8, where it may be seen that 95% of those college-educated who were aware of NFIP's contribution to the vaccine's development had an opinion about the "difficulty and delay", and about two-thirds of them (65%) blamed somebody for the situation. In contrast, among those respondents of grade school education who did not know who had

developed the vaccine, only 29% had an opinion on the question and only 11% blamed anybody for the situation.

TABLE 8

RESPONSIBILITY FOR VACCINE DELAY
BY EDUCATION AND KNOWLEDGE OF DEVELOPMENT

	N	Percent Expressing Opinion	Percent Blaming Someone
ATTENDED COLLEGE			
Credited NFIP	(151)	95%	65%
Credited some other	(192)	91	48
Don't know.	(38)	58	32
HIGH SCHOOL ONLY			
Credited NFIP	(296)	87	49
Credited some other	(544)	80	38
Don't know.	(219)	42	17
GRAMMAR SCHOOL ONLY			
Credited NFIP	(75)	87	40
Credited some other	(335)	68	33
Don't know.	(419)	29	11

It was apparently necessary for an individual to have a certain amount of information about the Salk vaccine before he was likely to venture even a guess about what had caused the delay in its distribution. The ignorance of a third of the people concerning the vaccine's development is roughly paralleled by the ignorance of approximately the same number concerning the cause of the delay.

The more informed individuals were also more likely to censure someone for the delay. Consistently, it is the less educated and less informed who give the "neutral" answers which have no element of blame in them. Most of the latter group were aware of the gross facts of the situation but they could not readily account for those facts. As a result, they were more likely to say only that the vaccine was being held up, needed further testing, was not yet in sufficient supply, etc. The more educated and informed individuals, on the other hand, were more aware of the parts played by the various groups and agencies concerned, and were thus more likely to focus their criticism on one of these.

The critics within the various population sub-groups did not vary a great deal in the targets they chose for their criticism. The better informed and educated were somewhat more likely to blame the government, and less likely to blame "politics", "racketeering" or some unknown "they." But the criticism is similarly diffuse within all groups, with no particular institution or agency bearing the brunt of any group's resentment. Among a few groups, critics of the government's role reached a level of 20% or so, but in all population groups, what blame there was seems to have been widely distributed.

One example might be cited to illustrate how individuals with more education tended to give explanations of specific relevance to the situation, while people with less education were more likely to fall back on stereotyped explanations applicable to any situation. Thus, of those with a college education who had an opinion on the matter, 12% volunteered the opinion that the government should have exercised more control over the vaccine's production and distribution; only 4% of the equivalent grammar school group offered this explanation. In contrast, 11% of the grammar school group with opinions expressed the view that racketeering, greed, black market activities, jealousy, etc., were responsible for the delay; only 4% of the equivalent college group took this position.

This same example, however, emphasizes once more the remarkable variation in opinions concerning the vaccine delay -- the lack of consensus on the matter. The college educated are a generally well informed and articulate group within the population, but when asked to account for the problems encountered in the distribution of the vaccine, only 12% explained that the government had not exercised sufficient control. Considering the widespread publicity given this notion in the mass media at the time, the failure of even this theme to have attained a central position in the ideas of the informed public points up the general diffuseness of people's reactions to the problems.

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EXPECTATIONS CONCERNING INOCULATION OF OWN CHILDREN

The majority of parents seem to have been quite realistic as to the likelihood of their children being inoculated during 1955. Most of those with children in the age group to which shots were being administered under the NFIP program expected at least one of their children to be inoculated, while parents whose children were not in the appropriate age groups tended to realize that the likelihood of inoculation was slight. Table 9 shows these findings.

TABLE 9

QUESTION ASKED OF ALL RESPONDENTS WITH CHILDREN UNDER 18

"Do you expect (any of) your child(ren) to be inoculated against polio this year?"

	Percent of Parents with Children in Age Groups:					
	All Parents N=1157	6-9 N=511	3-5 but none 6-9 N=203	10-14 but none 3-9 N=236	0-2 but none 3-14 N=125	15-17 only N=82
One or more children already inoculated. .	9%	19%	*%	1%	-%	1%
None inoculated yet, but expect at least one will be	33	42	32	24	24	15
Don't expect any to be inoculated.	46	29	55	58	67	71
Don't know.	12	10	13	17	9	13
	100%	100%	100%	100%	100%	100%

* Less than half of one percent.
\- None.

For a variety of reasons, the figures cited in Table 9 cannot be relied on to furnish accurate projections of the number or proportion of children who had actually been inoculated by June and July 1955. For one thing, it should be noted that the

percentages shown are "percent of parents" -- not of children. Individual children were not inquired about. A parent of four who expected any one or all of his children to be inoculated would answer "Yes" and would be counted only once.

Furthermore, the question itself was not designed to provide accurate data on the number of inoculations actually performed, and this information was provided only incidentally in the form of volunteered statements that one or more children already had received the shots. The figures shown appear to be underestimates of the true total of inoculations by that time, and one reason lies in the fact that some parents whose children had actually received the vaccine simply failed to volunteer that information. Thus, when asked "Do you expect any of your children to be inoculated against polio this year?", a parent whose child had received one of the shots and was scheduled for another might simply answer "Yes" without mentioning that one inoculation had already been received. Or a parent of two children might answer "Yes", meaning that the older was expected to be vaccinated, without mentioning a previous inoculation of the younger child.

For the sample of parents as a whole, expectations that their children would be inoculated were remarkably uniform among groups of varying information and attitudes. The college educated parents were only slightly more likely to expect inoculation of their children than were less educated parents. Those who credited Dr. Salk or the NFIP for development of the vaccine showed no difference from those who were less informed. Parents who blamed someone for the delays and difficulties in administering the vaccine varied hardly at all from those who adopted a neutral attitude. Even parents who expressed agreement in another part of the interview with the statement, "A person understands his own health better than most doctors do" -- a response which other analyses have shown is correlated with lack of confidence in modern medicine -- were only slightly less likely to expect a child to be inoculated that were parents

who disagreed with the statement. Analyses involving other attitudinal questions show a similar absence of relationship.

Explanation of this finding probably lies in the fact that information about the vaccine situation was correlated with two conflicting factors which offset one another, thus producing little or no net change in expectations. The educated and informed parents were, first, less fearful and probably more desirous of the vaccine for their children than were those parents with less education and knowledge. As a result, we would anticipate that relatively more of them would expect inoculation. But on the other hand, the educated and informed parents were more likely to have knowledge of the shortage of supply and the "difficulties and delay" in the program; and such awareness would tend to reduce their expectations, as compared with parents with little or no knowledge of these difficulties.

Some confirmation of this view may be found in a separate analysis of those parents with children in the 6-9 age group -- the group which was in reality the most likely to be inoculated, and whose parents were most likely to be aware of the actual situation. Among these parents, education does make for differences: only 18% of the college-educated parents, as compared with 28% of those with a high school education, and 35% of those with grade school education, did not expect their child to be inoculated. But among parents of children outside the affected age group, differences according to education were negligible. Table 10 shows the comparison for the two groups.

An attempt to study differences in expectations over the course of the summer is handicapped by the fact that most of the interviewing took place during a few weeks of June, with relatively few occurring in late July and August; and by the fact that the characteristics of those interviewed later differed in some respects from those who answered earlier. (Interviewing went more slowly in the larger cities,

TABLE 10

EXPECTATION OF INOCULATION DURING THE YEAR
BY AGE OF CHILDREN AND EDUCATION OF PARENTS

	Percent of Parents of Children 6-9		
	Grammar School N=152	High School N=267	College N=92
Already inoculated	19%	17%	24%
Expect will be	37	44	46
Expect will not be	35	28	18
Don't know	9	11	12
	100%	100%	100%

	Percent of Parents of Children 0-5 or 10-17 But With No Children 6-9		
	Grammar School N=192	High School N=342	College N=112
Already inoculated	1%	1%	-%
Expect will be	23	25	28
Expect will not be	57	62	61
Don't know	19	12	11
	100%	100%	100%

for example, so that a greater proportion of the July-August interviews are with residents of large metropolitan areas.) Nevertheless, among parents of children in the 6-9 age group, there does seem to have been a greater expectation of inoculation later in the summer than earlier. Twenty-three percent of these who were interviewed July 17 or later, reported that the child had already been inoculated, and 49% more expected it that year, making a total of 72%. Among these parents who were interviewed prior to July 17, on the other hand, only 18% said inoculation had already taken place and only 41% expected it -- a total of 59%. Such an increase in expectation over the course of the summer would be in accord with the fact that there had been no recurrence of the outbreak of polio among inoculated children which had taken place in April, and with the fact that a sizable supply of the vaccine had been declared free of active virus and released for use by mid-July.

A similar trend is not revealed among parents of children in other age groups -- either because the events of early summer had less influence on their attitudes toward the vaccine, or because even though the vaccine was being released more rapidly, they still felt there wouldn't be enough of it for all age groups.

Reasons for Not Expecting Inoculation

It should be emphasized, of course, that the question just reported concerns the parent's expectations, and not his attitude toward the vaccine. Many who realistically expected the inoculation may have been displeased with the idea; many who answered negatively to the expectation question may yet have had unlimited confidence in the vaccine. Table 11 shows the reasons offered by the parents who did not expect any of their children to be inoculated that year.

TABLE 11

	Percent of All Parents N=1144	
Child is in the wrong age group, too young or too old to be inoculated	26%	
Vaccine is not available	10	
Regular doctor is not giving it	4	
Uncertain about safety or effectiveness of vaccine	17	
Fear of the vaccine	8%	
Fear of the vaccine now, but it may be safe later	5	
Doubts as to whether the vaccine is ready for mass distribution	3	
Doubts as to effectiveness of the vaccine	1	
Children are healthy, have good resistance	2	
Can't afford it	1	
Miscellaneous reasons	2	
Don't know, just don't expect it	2	
Do not expect inoculation, or doubtful	(64)	58%
Already inoculated, or expect it		42
		100%

About one parent in six (17%) expressed doubts or fears about the vaccine, while another 2% took the position that it was unnecessary. About one parent in five, therefore, seemed to be undesiring of the vaccine at that time. About two

parents in five expected or had already experienced inoculation that year, while the remainder (two parents in five) did not expect it, but did not express any opposition to it in the reasons they gave -- usually the shortage of supply.

The relatively low proportion of parents who gave fear or uncertainty about the safety of the vaccine as a reason for not expecting the inoculation of their children conforms with the evidence of public calmness presented earlier in this report. While people were generally aware that an early batch of the vaccine had proved unsafe and that the program had been held up pending further testing, the great majority of parents and public alike appear to have accepted the developments calmly and with forbearance. Only about half of the parents who did mention fear or doubts about the vaccine's safety seemed to express a fundamental lack of faith in it, and these represented only 8% of the nation's parents of children under 18. The other doubtful responses referred either to the present safety of the vaccine, or to its probable effectiveness.

It is possible, of course, that more parents than the 17% who admitted it were afraid of the vaccine, but in our view the figure represents little or no understatement. It is true that some who actually feared the vaccine may have given what they felt was a more acceptable reason for not expecting inoculation, such as the shortage of supply. Yet if fear had been a widespread reaction in many communities, there would have been no reason to hide such a majority sentiment. Actually, among parents of children in the 6-9 age group, 61% said either that a child had already been inoculated or that they expected one to be. Of the remaining 39%, half or more must have included parents of children 8 or 9, but not 6 or 7; and the reasons other than fear which were offered by this group probably had a quite realistic basis. This leaves few parents of 6-9 year olds who could have been subject to fear, and if there was a low incidence of fear among this group who were most affected, the incidence

was not likely to be higher among other groups of parents. It may be, of course, that many or even a majority of parents had slight doubts or reservations about the vaccine, as one has concerning any unfamiliar thing, but these were hardly serious enough to deter acceptance of the inoculations.

Analysis of the trend in "fear" responses, as the interviewing progressed during the summer, is subject to the limitations previously mentioned. Nevertheless, there appears to be a steady and significant decline from early June to late August in the proportion of parents giving this reason for not expecting their children to be inoculated. Table 12 shows this trend.

TABLE 12

TREND IN "FEAR" RESPONSES*

Date of Interview	"Fear" Responses Among All Parents		"Fear" Responses Among Those Not Expecting Inoculation	
	N	%	N	%
June 18 or earlier	182	20%	102	35%
June 19-25	340	19	194	33
June 26-July 2	253	20	162	32
July 3-16	199	17	112	30
July 17-August 13	106	12	58	22
August 14 or later	64	8	29	17

* Includes all four categories listed under "Uncertainty about vaccine" in Table 11.

It has been suggested that during the latter part of 1955 the public in certain sections of the country showed little apparent interest in obtaining the Salk vaccine. The survey data indicate that where such apathy existed, the major reason did not lie in fear or hysteria about the safety of the vaccine. To the contrary, the great majority of parents whose children were eligible for the shots expected to get them as soon as they were available. And as the outbreak of polio cases following some

of the vaccinations in April receded into the past, fear of the vaccine's safety became characteristic of only a small minority.

A quarter of all parents, and almost half of those who did not think their children would be inoculated, cited the age group of the child as the reason. Most of these referred to the fact that their children would not be eligible under the mass inoculation program. An additional 10% explained that they couldn't get the vaccine because there wasn't enough to go around, the program had been held up, or "They aren't giving it here." Only 5% of the parents explained that their regular doctor was not giving the shots or that they could not afford the cost of inoculation. It is evident that the overwhelming majority of parents were thinking in terms of the mass inoculation program, with relatively few relying upon their pediatricians or private doctors. Such an interpretation seems to comport with the facts of the case at that time, when in most areas the vaccine could be obtained only through the mass program which had been established for priority age groups.