Informed Consent by Children and Participation in an Influenza Vaccine Trial

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Abstract: Two hundred thirteen school children, ages six to nine, were presented the opportunity to participate in an experimental trial of swine influenza vaccine. In non-directive question and answer sessions, all groups of children except one composed only of six year olds elicited all relevant information on the details of the trial and the associated risks and benefits. Forty-six per cent of the subjects declined to participate. Letters requiring informed consent of the parents were sent to the homes of the others. Almost 15 per cent of these parents agreed to their children's participation. In this setting, children initiate their own visits to the school nurse practitioner. A significant association was found between volunteering for the study and higher use of services (but not for medical reasons). Younger children and boys, regardless of their patterns of use, were less inclined to volunteer for the experiment. (Am. J. Public Health 68:1079–1082, 1978.)

Introduction

There has been increasing interest in children's rights, including their right to participate in decisions that fall under the general heading of informed consent prior to receiving certain treatments.[1] In fact, it has been advocated that, whenever possible, informed consent be obtained from children, as well as their parents.[2] The extent to which this practice is occurring throughout the United States is unknown. To our knowledge, however, children have never been approached as the initial decision-makers (subject to adult approval) regarding their participation in a vaccine trial. This is a report of the results of allowing a group of children, ages six through nine, to be involved actively as informed decision-makers in a clinical trial of vaccine for swine influenza.

Background

The setting for this study was the University Elementary School (UES) of the University of California at Los Angeles. In the spring of 1976, 376 children were enrolled in this "laboratory" of the School of Education. Children attending UES are chosen from a large pool of applicants representing children from a variety of social and economic backgrounds. They are selected to represent a cross-section of the abilities and problems faced by teachers in public schools. In 1976, 85 per cent of these children were Caucasians, and the majority came from middle to upper middle class homes in West Los Angeles.

For the past four years, the authors have been involved in a study of the impact of allowing children to participate actively in the decision-making processes related to their own health care during school hours. This study, "Child-Initiated Care," has been described elsewhere,[3] including data on the utilization patterns of children in an "adult-free system."[4] In this system children are allowed to assume responsibility for decision-making with regard to when and for what problems they require care, and to be involved in the decision-making related to their treatment and the disposition of their problems. In this setting, children have come to expect to be involved in decisions related to their health.

The Proposal

In the spring of 1976, a member of the Department of Pediatrics approached the Principal of the school with respect to using the population of the school as subjects in a trial of vaccine being prepared for immunization against swine influenza virus. This investigator, a pediatrician-virologist, had obtained the necessary clearances from the Human Subjects Protection Committee at the University for the proposed research protocol. Because of the ongoing study of Child-Initiated Care, the Principal of the school consulted the authors. After some discussion involving all concerned,

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it was proposed that the vaccine trial should be presented to the children, and they should be allowed to function as the initial decision-makers with regard to giving their own "informed consent."

Methods

Since the study was limited to children between six and nine years of age (by the pediatricians and virologists), only classrooms with children of this age range were included. The authors went to each of these classrooms on the same morning, informing the children that a study was to be conducted and that they were going to be asked to participate. The nature of the study was described, but few details were provided. After a brief pause, questions were invited. This was done to permit the children to initiate inquiries about the experiment. An effort was made to conduct these discussions in a completely neutral tone. The process was tape recorded so that the sessions could be reviewed for possible bias, in terms of suggestions by the presenters that the trial was either "good" or "bad."

Following the question and answer period, risks and benefits were reviewed as outlined in the protocol, and children were given individual consent forms. They were told that if they wanted to participate in the study, they should indicate "yes", and if they did not want to do so, they should write, "no". However, if they felt that this was a decision they were unprepared to make by themselves, they would be allowed to share this decision-making with their parents.

They were further instructed that *only* those children who indicated they would like to participate, or who felt unable to make a decision, would have a letter sent home to their parents describing the trial. It was emphasized that in these cases, parents would participate/make the ultimate decisions, and only those children whose parents agreed, could be given the vaccine. The parents of those children responding "no" would not be sent any such letter inviting them to give consent for their children to participate. Any child saying "no", in essence, made the final decision. While the discussions were in groups, children were not allowed to review their decisions with others until the forms were collected.

Subsequently, the letters were sent home with children indicating "yes" or "?", along with a cover letter from the Principal of the school stating that parental consent was required for children to receive the vaccine. The study and its risks and benefits were described in detail as required by the protocol for the study. Pressures of time did not permit mailing these letters to the homes, but contact with a sample of parents indicated that essentially all letters arrived at their intended destination. Sending communications home with the children is a common procedure at this school.

Results

Informed Consent by Question and Answer. The presentation in each classroom lasted approximately five minutes. Question and answer sessions took from 15 to 30 minutes. All classes were informed on the same morning. The form of the question and answer session was remarkably similar. All questions were initiated by the students; the informant's only question was, "Anything else you'd like to know?" Children verified that the study would involve getting "shots". They asked about the side effects; these were described. They asked how soon side effects might occur, and how likely these were to occur. They also asked why blood samples (to determine antibody responses) would be taken. Younger children (age six) often asked the presenter to demonstrate how much blood would be taken (two teaspoonsful?), as well as the size of the needle to be used.

Children asked about the magnitude of the side effects with questions like, "Will I be sick enough to have to stay home from school?" Children in more than one class asked, if "it" (the vaccine) had been tried on anyone else, and why *they* in particular had been chosen for this study. They also asked if the presenter had taken the shot (answer: no). With regard to benefits, they asked what would happen if they were exposed to, or got influenza.

A review of the tape recordings provided no evidence of any classroom variation in the introductory statements or biased responses to questions.

Differences by Age and Sex. There were only two differences noted among age groups. In all but one class—composed only of six-year-olds—the question and answer period clarified the potential future benefits to the subjects, i.e., the vaccine, if effective, would keep them from getting influenza, if exposed. Also, older children more often asked about the likelihood of influenza occurring in their community this year. (Obviously, several of these epidemiologic questions could only be answered honestly by saying, "We don't know.") There were no differences in the type of questions asked by boys and girls.

The final step in each classroom required the reading of the risks and benefits associated with the project, as enumerated in the protocol. This amounted to a reiteration of the material generated by the children themselves in the question and answer period—with the exception of the one class of six-year-olds.

Decisions

Table 1 illustrates the number of children involved in the study, the proportion who made different responses on their consent forms, and those participating in subsequent steps of the trial. The boy/girl ratio reflects that of the school in general.

While 213 children were "at risk", 54 per cent said either "yes" or felt that they could not make the decision without their parents. Of those parents who received letters, almost 15 per cent agreed that their child should participate in the trial, and all but two of this group received the vaccine. Two children had mild febrile reactions.

While from 70–90 per cent of the children in each class (N = 20–30) participated in the discussions about the vaccine, there was no opportunity to relate the nature of the

TABLE 1—Children Involved in the Decision-Making Process

	Boys	Girls	Total	Per Cent
At "risk"	93	120	213	100
Decisions				
Yes	18	26	44	20.7
?	24	47	71	33.3
No	51	47	98	46.0
Letter Sent Home*	42	73	115	54.0

*Parents of children responding "no" were not sent letters.

child's participation or questions posed and the decision made. Thus, there was no opportunity to examine the child's level of information at the time he/she decided about participation.

Decisions and Patterns of Use

Under the system of Child-Initiated Care, utilization patterns have been found to be quite similar to those of adults, i.e., approximating a negative binomial distribution.[5] During the year 1975–76, approximately 30 per cent of the 376 children in the school made no visits to the school nurse, while 18 per cent made seven or more visits and accounted for over 50 per cent of all visits recorded. The latter group have been termed "high users". The cut-point is placed at seven visits in order to define, for statistical purposes, children who compose that portion of the population making about one-half of all visits.

Table 2 summarizes the pattern of use of all students at UES, those exposed to "informed consent", those volunteering or uncertain, and those receiving the vaccine.

The association between pattern of use and decision-making regarding the vaccine trial for those at risk is presented in Table 3. Data on use were incomplete for three of the 213 children involved, thus they were not included in this table.

There was a statistically significant association between pattern of use and the decisions made, with high users being more likely to volunteer. In this setting under the care card system and in other public schools where the study has since been replicated, high users have been found not to have significant illnesses or medical problems that might predispose them to excessive risk if they were to acquire the disease.

TABLE 2—Patterns of Use of Those Involved (1975–76)

		Pattern of Use (%)		
	Number	No Visits	1–6 Visits	High Users
All Children at UES	376	30%	52%	18%
At Risk-Exposed to Informed Consent	213	26	51	23
Volunteers (Yes-?)	115	15	53	32
Receiving Vaccine	15	33	27	40

TABLE 3—Decisions and Patterns of Use

	Decisions			
Use	Yes	?	No	Total
High	17 (39.5)	20 (28.2)	11 (11.5)	48
Regular	22 (51.2)	38 (53.5)	48 (50)	108
None	4 (9.3)	13 (18.3)	37 (38.5)	54
TOTAL	43 (100%)	71 (100%)	96 (100%)	210

$X^2 = 23.79$
4 d.f.
$p < 0.001$

Sex and Age. When the responses in Table 3 were examined on the basis of age, younger children more often declined to give consent. Among six-year-olds, 80 per cent said no, while for seven, eight and nine-year-olds the figures were 56 per cent, 46 per cent, and 27 per cent respectively.

As indicated in Table 1, more girls were unable to decide than boys, and when pattern of use and decision-making were examined for each sex separately, among girls, higher users more often volunteered for the trial ($X^2 = 25.6$, $p < 0.001$). Among boys, a similar trend was observed; however, this was not statistically significant.

Discussion

It has been demonstrated that among adults those volunteering for participation in screening and trials[6] represent a non-random subset of the population. To our knowledge this is the first time that such a bias has been demonstrated among children. This may not be too surprising in view of the unpublished data from our continuing studies suggesting that by this age (6–9 years), children seem to have acquired reasonably fixed patterns of use when they are allowed to seek care free of adult stimulation/sanctions.* These patterns of use are associated with the same variables known to influence such behavior among adults, i.e., social class, sex, and psychological orientations.

The variation between the sexes reflects the differences found between boys and girls in health or orientations and overall use of services that have been reported.[7]

The high users in the Child-Initiated Care system do not have medical problems. Rather, they are children who tend to use health services as a coping mechanism.[8] They are children who are more often taken to physicians, and tend to have mothers who have a high perceived vulnerability, and more often take their children to doctors. These children have a "gestalt" that is illness-oriented. When presented an option related to their own health (the trial), it is not surprising that they were more likely to choose to participate.

*Over 80 per cent of the children observed for four years have continued to display similar rates of visiting.

The fact that children who are more illness-oriented tend to volunteer for health-related research studies (and have parents who have similar orientations) has some significance for investigators. Such subjects may be more prone to report subjective responses, either desirable, undesirable, or both, as a result of their "treatment".

The question and answer period demonstrated that children of this age functioned *in a group* fairly adequately as a human subjects review committee. Of all aspects of informed consent, the least understood by six-year-olds was the concept that future benefits could be obtained from an immediate "cost".

The suggestion that the children should be involved in their own care is not new. The mid-century White House Conference on the Health of Children advocated such efforts,[9] and concern over the rights of children has accelerated interest in such proposals. More recently it has been recommended that research involving children should seek their informed consent, if they are over the age of seven years.[10] The empirical data from this experience tends to confirm the appropriateness of recommendations which seem to have been set on theoretical grounds, since there is no information in the literature that describes the developmental patterns of decision-making behaviors among children.

It should be noted that these children were quite able to deal with the principles of informed consent in groups where there was considerable opportunity for exchange and stimulation. Since their individual competencies in assessing risks and benefits were not examined, the results cannot be generalized or extended beyond the conditions reported. However, they do indicate that children of this age can be *involved* meaningfully, as in this study, in decisions related to informed consent, while the final decision may be made by an adult. We suggest that they should be involved, if they are to *begin* to assume responsibility for decision-making regarding their own health—a process that will be required of them for the rest of their lives.

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Conference Announcement

The Society for Occupational and Environmental Health has announced a forthcoming conference on "Pesticides and Human Health", to be held December 10–13, 1978 at the Hyatt Regency Hotel, Washington, DC. A detailed news release and preliminary program can be obtained by contacting:

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