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Communication for Child Survival

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FIELD NOTE

IMMUNIZATION COVERAGE IN NIGER STATE

Findings from the HEALTHCOM Baseline Survey Carried Out in February 1988

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BACKGROUND AND DESCRIPTION[1]

Of the 4,500,000 births that occur in Nigeria each year, an estimated one out of every five children dies before reaching his or her fifth birthday. This is a result of the cumulative impact of poverty, short birth intervals, undernutrition, and infectious diseases. Many of these deaths could be averted through regular health care and timely vaccinations to prevent diseases like measles, polio, tetanus, diphtheria, and tuberculosis. Approximately 50 percent of all Nigerians have consistent access to health care through basic health centers, rural health clinics, general hospitals, and maternal and child health clinics. The goal for Nigeria is to have 80 percent of its children under two years of age fully vaccinated by 1990.

One way in which Nigeria is addressing immunization coverage is through the Health Communication for Child Survival (HEALTHCOM) Project. HEALTHCOM is a five-year communication project designed to assist developing countries increase the impact of child survival programs through improved communications. HEALTHCOM is sponsored by the Office of Health and the Office of Education within the Bureau for Science and Technology of the U.S. Agency for International Development (USAID). The project is administered by the Academy for Educational Development in Washington, D.C.

In Nigeria, HEALTHCOM is part of the USAID-sponsored Nigeria Child Survival Program, which seeks to decrease the morbidity and mortality of children under five. Other major participants in the Program include the CCCD (Combatting Communicable Childhood Diseases Project) and PRITECH (Technologies for Primary Health Care Project sponsored by USAID). UNICEF collaborates on certain program activities. The specific objectives of HEALTHCOM are: 1) to strengthen state and national health communication capabilities through in-service training of health educators; 2) to assist in the design, production, and evaluation of programs and materials concerned with priority

[1]This study could not have been carried out without the assistance and support of a large number of people in Nigeria. We would particularly like to acknowledge the input and assistance of Dr. Susan Saba, Permanent Secretary at the Ministry of Health in Niger State; Dr. G. M. Gambo, Principal Medical Officer at the Ministry of Health in Niger State; and Mr. Tony Agboola, HEALTHCOM Resident Adviser for Nigeria. We would also like to thank the Health Education and Nutrition Unit in Niger State for their help in organizing the survey.

issues in the Nigeria Child Survival Program; and 3) to develop and test innovative health communication methods and techniques.

The Nigerian national government, through the Federal Ministry of Health (FMOH), has given high priority in the Child Survival Program to increasing participation in vaccination programs and the use of oral rehydration therapy to prevent dehydration due to diarrhea. Niger State has been designated as the initial site for HEALTHCOM activities at the state level. Following national priorities, the Niger State health officials have indicated that the Expanded Program for Immunization (EPI) and diarrhea would be the areas of highest priority for HEALTHCOM in Niger State. Thus HEALTHCOM is expected to identify ways to persuade mothers to bring their young children more frequently for vaccinations and to promote the use of a water/sugar/salt solution for oral rehydration.

The Annenberg School of Communications of the University of Pennsylvania has a contract with the Academy for Educational Development (AED) to conduct evaluation activities related to the HEALTHCOM Project in Niger State. As part of these activities, the Annenberg School is carrying out a before-after study of mothers of young children in Niger State to measure awareness, knowledge, and behavior related to immunization and treatment of diarrhea. The baseline survey of mothers was carried out in February 1988. This field note presents the findings on immunization from this survey.

In the baseline survey, 1069 mothers of children under four years of age were interviewed. The sample was selected using a two-stage cluster random sampling strategy. Mothers were selected from all nine local government areas and Minna Municipality. The following pages present the results on immunization from the baseline survey in Niger State. The results are discussed in the form of answers to the following questions:

What are the vaccination coverage rates for young children in Niger State?

Are low coverage rates related to access to immunization services?

Do children have low vaccination coverage because their mothers aren't aware of vaccination or have insufficient knowledge?

Do children have low vaccination coverage because their mothers don't know where or when to get immunization services?

WHAT ARE THE VACCINATION COVERAGE RATES FOR YOUNG CHILDREN IN NIGER STATE?

To measure vaccination coverage we asked to see the vaccination card for each woman's youngest child. If the child had no card or if the card wasn't available, we asked the mother about each vaccination. Using only the data verified by vaccination cards showed very low levels of immunization because this method assumed children with no cards had no immunizations. In Nigeria, mothers pay for each child's vaccination card. It is possible that a mother may have had her child vaccinated, but not be able to verify this on a card because she couldn't pay for a card. However, simply asking mothers about immunization may have given high estimates because a mother may have been trying to please the interviewer or trying to show that she had carried out the correct behavior. We assumed that the true level of vaccination coverage was somewhere between what was reported on the cards and what was claimed through mothers' reports. In general, the figures we will present combined card and mothers' reports.

Vaccination coverage is low.

Among children 12 months old and older, 38 percent had all eight vaccinations (card and mother report). Only 23 percent had full coverage if we count only the immunizations that could be verified by card. Thus, full immunization of children one year old and older is probably between 23 and 38 percent.

Among all children, 37 percent had no vaccinations at all, 26 percent had some of the vaccinations required for a child at that age, and 37 percent had full coverage at the appropriate age[2] (n=1027).

[2]Full coverage for age was defined here as:
Child has BCG by 3 months of age.
Child has BCG, DPT1, and Polio 1 by 6 months.
Child has BCG, DPT1 & 2, Polio 1 & 2 by 9 months.
Child has all 8 vaccinations, including measles by 12 months.

Among children 12 to 48 months, at least 28 percent had no vaccinations at all.

There is a large drop in vaccinations received over time. Children are not finishing the sequence once they start.

Table 1 shows the immunization levels for children 12 months and older and for children between 12 and 23 months of age. Seventy-two percent of the children between 12 and 48 months of age were reported to have received BCG (61 percent actually had a BCG vaccination scar), 61 percent received DPT1, but only 41 percent received DPT3. One-third of the children who received DPT1 did not receive DPT3.

If we look at children between 12 and 23 months of age, we see the same drop in vaccinations over time. One-third of the children who were given DPT1 had not received DPT3 in their second year of life.

TABLE 1

Immunization of Children 12-48 Months and Children 12-23 Months of Age

	Children 12-48 Months		Children 12-23 Months	
	Data from cards only	Card and mother report	Data from cards only	Card and mother report
BCG	38.3%	71.6%	35.6%	65.1%
BCG scar (observed)	--	60.5%	--	55.7%
DPT1	35.9%	61.3%	34.3%	58.0%
DPT2	30.4%	49.0%	29.6%	47.9%
DPT3	24.1%	41.0%	25.3%	41.1%
Polio 1	35.9%	61.3%	34.3%	58.0%
Polio 2	30.4%	50.2%	29.7%	49.0%
Polio 3	24.1%	41.2%	25.3%	41.1%
Measles	26.1%	46.3%	26.2%	43.7%
Full Coverage	22.6%	38.1%	23.6%	36.3%
	(n=594)	(n=594)	(n=305)	(n=305)

ARE LOW COVERAGE RATES RELATED TO ACCESS TO IMMUNIZATION SERVICES?

There is evidence that access to services is a problem in achieving vaccination coverage. Mothers who relied on clinics for vaccinations were three times more likely to have full coverage for age of their youngest child than mothers who relied on a mobile team[3]. Dropout rates were higher for children whose mothers relied on mobile teams.

Table 2 shows that 61 percent of the youngest children of clinic users had full coverage for age compared to only 19 percent of youngest children of mothers relying on teams. Forty-two percent of the youngest children of mobile team users (mothers who had been to a mobile team for a previous child) had no vaccinations.

Table 2

Coverage of Youngest Child by Where Last Child was Vaccinated (card and mother report)

	Clinic	Mobile Team
No vaccinations	13.7%	42.4%
Partial for age	25.3%	38.5%
Full vaccination for age	61.0%	19.1%
	(n=495)	(n=309)

[3]Mothers who rely on clinics are those who said they went to a clinic the last time they vaccinated any of their children. Mothers who rely on mobile teams are those who said they went to a mobile team the last time. Of the women interviewed, 48 percent went to a clinic, 31 percent to a mobile team, 13 percent had no children vaccinated, 2 percent went elsewhere, and 6 percent couldn't remember (n=1062). This definition of clinic versus mobile team reliance may confound access to clinic with activeness of the mother in obtaining vaccination. In subsequent reports, additional analysis will be used to sort out these two factors so as to be able to describe the effects of access alone. An indicator of access effects can be seen where distance from clinic is used to predict coverage rates.

Table 3 shows immunization levels for children 12 months of age and older according to whether their mother went to a clinic or mobile team for the last vaccination. In this table we can see that the dropout rate for mobile teams was higher than for clinics. Among children served by mobile teams, we see a drop of 56 percentage points between DPT1 and DPT3 compared to a drop of 24 percent among children served by clinics.

Table 3

Immunization Levels for Children 12 Months Of Age and Older, whose Mother went to a Clinic or Mobile Team for the Last Vaccination

	Clinic	Dropout Rate From First Vaccination In Series	Team	Dropout Rate From First Vaccination In Series
BCG	92.6%		70.7%	
DPT1	83.3%		54.3%	
DPT2	72.9%	12.5%	33.7%	37.9%
DPT3	63.7%	23.5%	24.1%	55.6%
Polio 1	82.9%		54.8%	
Polio 2	74.3%	10.4%	35.2%	35.8%
Polio 3	63.7%	23.2%	24.6%	55.1%
Measles	63.3%		38.8%	
	(n=281)		(n=197)	

Mothers who relied on clinics for vaccinations were more likely to have a vaccination card for their youngest child than those who relied on teams. Considering only those children who had at least one vaccination, 61 percent of mothers who relied on the clinic could show this child's vaccination card compared to 42 percent of mothers who went to mobile teams (n=601).

Convenience of immunization services is important. Distance from the clinic was strongly related to full vaccination coverage. Among mothers who went to clinics for immunizations, those who lived in a village with a clinic were more likely to have had a fully immunized child than those living outside a clinic village. Mobile teams did not seem to have a regular or frequent schedule of visits.

Table 4 shows that full coverage of children dropped from 69 percent in clinic villages to 47 percent if the mother lived outside the clinic village.

Table 4

Immunization Coverage of Youngest Child Whose Mother Went to a Clinic for Last Vaccination, by Distance from Clinic

	Clinic in Village/Town	Clinic 9km or less away	Clinic 10km or more away
No Vaccinations	12%	21%	14%
Partial Coverage	19%	33%	39%
Full Coverage	69%	47%	47%
	(n=242)	(n=58)	(n=110)[4]

However, convenience of services did not fully explain low coverage. In villages which had a clinic, 31 percent of the youngest children had no vaccination or only partial vaccination for their age (see Table 4). Other explanations for low coverage need to be examined.

The mobile teams did not seem to have a regular schedule for visiting each village or, if they did, the villagers weren't aware of this schedule.

[4]Eighty-five of the mothers who had taken their last child to a clinic are missing from this table because their distance from the clinic could not be determined.

Eighty-eight percent of the mothers who went to a mobile team for the last vaccination remembered when the team had last been in the village. However, ninety-six percent said they didn't know specifically when the team would return (although they said they would be told before the team's arrival).

Of the mothers who went to a team for the last vaccination, 21 percent said the team had come in the last month, 20 percent said it came one to two months ago, 19 percent said it came three to six months ago and 13 percent said that the last team had come more than six months ago.

DO CHILDREN HAVE LOW VACCINATION COVERAGE BECAUSE THEIR MOTHERS AREN'T AWARE OF VACCINATIONS OR HAVE LITTLE KNOWLEDGE?

Most mothers had heard of vaccinations. Mothers who had heard of vaccinations were more likely to have full coverage of their last child (see Table 5). However, we cannot say that making more mothers aware of vaccinations would be sufficient to increase vaccination coverage. We can't tell if awareness leads to coverage or higher coverage leads to awareness.

Table 5

Vaccination Coverage of Last Child by Mother's Awareness of Vaccinations

	Had Heard of Vaccinations	Had Not Heard of Vaccinations
No Vaccinations	30%	76%
Partial Coverage	27%	21%
Full Coverage	44%	4%
	(n=865)	(n=160)

Eighty-five percent of the mothers had heard of vaccinations.

When asked what vaccinations do, 42 percent of those who had heard of vaccinations said they were to protect a child against disease, 20 percent said they were for child health, and 33 percent didn't know (see Table 6). Thirty-five percent of all mothers had heard of vaccinations and said they protect against disease.

Mothers who weren't aware of vaccinations and those who claimed to be aware but didn't know of the protection vaccinations offer were asked if they knew of injections to protect against disease. Sixty-eight percent of these mothers (who did not offer the correct answers spontaneously) said they knew of protective injections when asked this question. In total, 80 percent of the mothers claimed to be aware of vaccination and its role in protection against disease.

Table 6

Awareness of Protective Function of Vaccinations

Had heard of vaccinations	84.7%	(n=1065)
Knew vaccinations protected (% of those who had heard of vaccinations)	41.7%	(n=896)
Knew about injections to protect when prompted[5]	68.1%	(n=658)

[5]This figure reports the answer to the question: Have you ever heard of giving children injections or other medicine to protect them from diseases? Mothers who had not heard of vaccinations or who had heard but couldn't tell what vaccinations were for were asked this question.

Knowledge about the age at which to start a child's vaccinations and about the number of vaccinations a child should receive is low.

Approximately one-third of mothers aware of vaccinations (27 percent of all the mothers in the sample) correctly said a child should start immunizations at birth or within 10 days of birth (see Table 7).

Twenty-eight percent of mothers who knew of vaccinations knew that a child needed five or more vaccinations (the correct number) and 63 percent (52 percent of all mothers) knew a child needed three or more vaccinations (see Table 7).

Table 7

Mothers' Knowledge about Immunizations
(Among those aware of immunizations)

	Mothers aware of vaccinations	All mothers in sample
Age at which child should be vaccinated for the first time.		
At Birth	16.9%	13.5%
1-10 days	16.9%	13.5%
More than 10 days	33.8%	27.0%
Don't Know	32.5%	26.0%
	(n=853)	(n=1033)
Number of vaccinations required.		
5	27.6%	23.0%
4	10.7%	8.9%
3	20.5%	17.0%
2	7.6%	6.3%
1	3.8%	3.2%
6 or more	4.1%	3.4%
Don't Know	25.7%	21.4%
	(n=884)	(n=1063)

Mothers with correct knowledge about vaccinations were more likely to have full coverage of their youngest child than mothers with incorrect or no knowledge. However, we can't assume that increasing knowledge alone will be sufficient to increase vaccination levels in Niger State. Again, we have a problem of causal direction—did mothers have their children vaccinated because they learned more about vaccinations or did mothers who immunized learn more from their experience?

Of the mothers who knew of vaccinations, 66 percent of mothers who knew vaccinations should start within 10 days had complete coverage of their last child compared to 33 percent of mothers with incorrect or no knowledge (see Table 8).

Of the mothers who knew about vaccinations, 58 percent who said a child needed three or more vaccinations had full coverage for age of their youngest child compared to 17 percent of mothers who either didn't know or said one or two vaccinations were needed (see Table 9).

Table 8

Vaccination Coverage by Mother's Knowledge about When a Child Should Start Vaccinations

	Age for First Vaccination	
	At birth-10 days	More than 10 days after Birth
No vaccination	16.1%	36.3%
Partial vaccination	17.5%	31.1%
Full coverage	66.4%	32.5%
	(n=280)	(n=544)

Table 9

Vaccination Coverage by Mother's Knowledge about the Number of Vaccinations Required

	Number of Vaccinations	
	1-2 or Don't Know	3 or more
No vaccination	53.3%	17.9%
Partial coverage	29.4%	24.3%
Full coverage	17.3%	57.8%
	(n=306)	(n=547)

DO CHILDREN HAVE LOW VACCINATION COVERAGE BECAUSE THEIR MOTHERS DON'T KNOW WHERE OR WHEN TO GET IMMUNIZATION SERVICES?

Knowledge of the logistics of vaccination did not seem to be a problem. The majority of mothers knew where to go for vaccination, knew when the clinic vaccination days were, and said they would know ahead of time when the mobile team would arrive.

Ninety-five percent of mothers who knew of vaccinations knew where they could go to vaccinate their children.

Of the mothers who said they could get vaccinations at a clinic, 95 percent knew what day the clinic gave vaccinations.

Eighty percent of all mothers had heard of mobile immunization teams. Of these, 86 percent said that a team had come to their village at some time.

Almost all of those who had heard of mobile teams (97 percent) said they didn't know when the team would return, but 83 percent said they would be informed ahead of time by the chief or a message to the village. This

suggests that the mobile teams did not follow a regular schedule. It is possible that knowledge of when the team will arrive may have been a problem (20 percent of mothers who had gone to a mobile team for the last vaccination said they are not informed ahead of time about the team visits).

SUMMARY OF FINDINGS

What are the vaccination coverage rates for young children in Niger State?

Vaccination coverage is low.

There is a large drop in vaccinations received over time. Children are not finishing the sequence once they start.

Are low coverage rates related to access to immunization services?

There is evidence that access to services is a problem in achieving vaccination coverage. Mothers who rely on clinics for vaccination were three times more likely to have had appropriate coverage for age of their youngest child than mothers who relied on a mobile team. Dropout rates were higher for children whose mothers relied on mobile teams.

Convenience of immunization services was important. Distance from the clinic was strongly related to full vaccination coverage. Among mothers who went to clinics for immunizations, those who lived in a village with a clinic were more likely to have a fully immunized child than those living outside a clinic village. Mobile teams did not seem to have a regular or frequent schedule of visits.

Did children have low vaccination coverage because their mothers weren't aware of vaccination or had insuffient knowledge?

Most mothers had heard of vaccinations. Mothers who had heard of vaccinations were more likely to have full coverage of their last child. However, we cannot say that increasing awareness of vaccinations would be sufficient to increase vaccination coverage in Niger State. We can't tell if awareness leads to coverage or higher coverage leads to awareness.

Knowledge about the age at which to start a child's vaccinations and about the number of vaccinations a child should receive was low. Mothers with correct knowledge about vaccinations were more likely to have full coverage of their youngest child than mothers with incorrect or no knowledge. However, we can't assume that increasing knowledge alone will be sufficient to increase vaccination levels in Niger State. Again, we had a problem of causal direction -- did mothers have their children vaccinated because they learned more about vaccinations or did mothers who immunized learn more from their experience?

Did children have low vaccination coverage because their mothers didn't know where or when to get immunization services?

Knowledge of the logistics of vaccination does not seem to be a problem. The majority of mothers knew where to go for vaccination, knew when the clinic vaccination days were, and said they would know ahead of time when the mobile team would arrive.