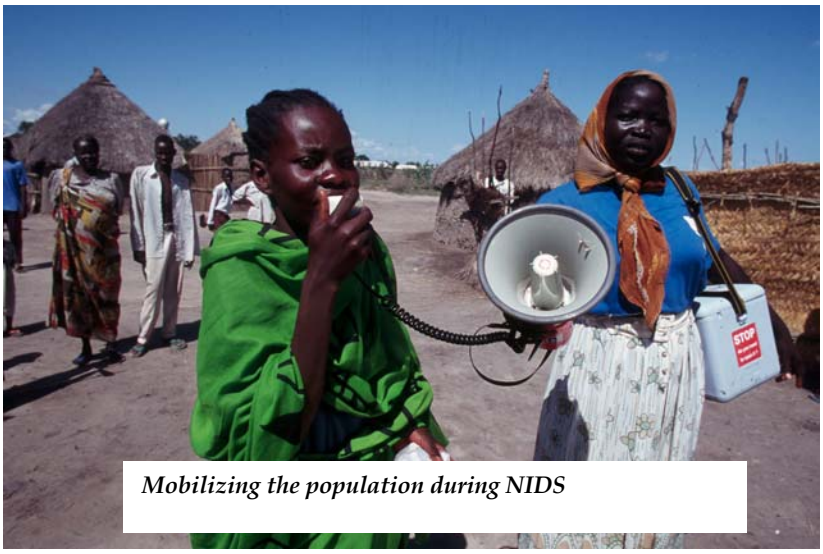
Knowledge Attitudes and Practices about Polio in Sudan



Mobilizing the population during NIDS

Submitted to UNICEF Khartoum and the Ministry of Health

By the

Center for Development Communication

2003

The Center for Development Communication

Map No. 3707 Rev. 5 UNITED NATIONS
September 2000

Department of Public Information
Cartographic Section

Foreword and Acknowledgments

A two phased study on Knowledge Attitudes and Practices about Polio was carried out during 2002, in order to help UNICEF and the Government of Sudan make appropriate strategic choices in terms of communication.

We carried out the study using a combination of local, regional and international resources. The early design and field work were led by CDC Director Moncef M. Bouhafa with the assistance of Issa Abyad, a well known researcher based in Amman Jordan. Because of the delay in carrying out the study Mr. Abyad had to be replaced by Admassu Tassew, a Washington based consultant from Ethiopia who led the quantitative phase of the study with the support of Graham Mytton, former director of audience research for the BBC in London. The field work was coordinated by Sawsan Mustafa who works with the Ministry of Health (a full list of the team members can be found in section 7.4 on page 53 of this report.

The Center would like to thank UNICEF, and particularly the Communication Officer, Nance Webber and the Communication and Health sections for all their help in carrying out the survey as well as helping resolve the many logistical issues that occurred during this assignment.

We have limited this report to results that are most significant from the study. UNICEF is encouraged to look further at the data that is available to probe for other areas that would be useful in implementing social mobilization strategies for Polio Eradication.

1. List of tables

List of Acronyms

CDC	Center for Development Communication
EPI	Expanded Programme of Immunization
GOS	Government of Sudan
KAP	Knowledge, Attitudes and Practices
MENARO	Middle East and North Africa Regional Office
NIDS	National Immunization Days
RFP	Request for Proposal
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Executive Summary

The results of this study show that the polio eradication effort has been successful in reaching many of its objectives for most Sudanese. The results do show that a small disadvantaged group of people who are difficult to reach, have not been so affected by the programme. This group has no access to Mass Media and seems to be mainly in the conflict ridden areas e.g. Upper Nile province. The only way to reach these groups would appear to be through social networks or other traditional channels.

In terms of Media Habits, Television access has grown in importance to where it is now a close second to radio – which still is the number one channel. UNICEF should consider making more use of television as it does not appear to be a medium that many people recall as far as information about National Immunization Days (NIDS) is concerned.

In terms of communication campaigns, the results show that school age children have less knowledge than adults about certain aspects of polio. While the primary targets of the campaign are parents and guardians, UNICEF requested that we also look at the knowledge of children. Given this result there is reason to believe that a school's based programme could help inform youth and prepare them for their role as future parents.

As far as sources of information for NIDS, posters and miking do not seem to be very worthwhile investments as they are reaching audiences that are already reached by either radio or TV. These investments should be re considered by the government and UNICEF.

While the focus of the study is on NIDS, there are some interesting results in terms of the routine Expanded Programme of Immunization (EPI). Most people still do not know what to do to vaccinate their child (on a regular basis going to a clinic). A few say that they should wait for NIDS. Most cite other reasons. These could be explored by UNICEF through secondary analysis of the data.

As far as decision making is concerned, the father plays a very important role (either on his own) or with the mother. Grandmothers may have influence in some households, but these are very few in number. Health programmes may have more impact by targeting males in the future – in addition to women.

There is a clear gender disparity in terms of access to media. This phenomenon is similar to that observed in other countries. Men have more access to media, but we do not know why. This question might merit further scrutiny by UNICEF and the Government of Sudan.

In terms of Media access there are some interesting disparities in the data. States like Gezira are media rich whereas Upper Nile is relatively media poor. This argues against national communication strategies and more targeted state by state campaigns

1. Introduction

1.1. Background of the Survey

The Government of Sudan and UNICEF in a 1999 Mid -Term Review of the Polio Eradication component of the Country Programme identified communication as a weak area, and recommended that a strategic research based approach be implemented. Subsequently, in April 2001, the National Consultative Meeting on Communication for Polio Eradication/EPI and Surveillance in Sudan proposed that a Knowledge Attitude and Practice study to be carried in October of the same year before the next round of National Immunization Days (NIDS), in order to feed the communication strategy providing for better targeting as well as a baseline against which future efforts could be measured.

The Consultative meeting suggested that assessing the present levels of knowledge and behavior would give a baseline for measuring the work to be carried out concerning communication and social mobilization. The meeting further recommended that a sample size of at least 1,500 respondents will 'make sense', and the survey should focus on 'households' and should try to find out 'the decision making process for immunization' and 'media habits' of the population in the study.

The recommendations of the consultative meeting were followed by a "Polio Eradication Communication Strategy and Action Plan" which was developed with the assistance of the Center for Development Communication (CDC), UNICEF New York, and MENARO. The action plan "…called for a KAP study to (I) assess current levels of knowledge, attitudes and behaviors (ii) provide information for audience segmentation (iii) provide a baseline for future monitoring and evaluation activities1".

A Task Force was formed by the country office of UNICEF Sudan made up of experts from the Government of Sudan Ministry of Health, UNICEF, WHO, and Red Crescent. The task force set guidelines for the KAP study concerning the sample size and other details. The Request for Proposal (RFP) for the study was prepared and made public inviting proposals to conduct a qualitative and quantitative baseline study in at least seven zones in Sudan at the household level.

The Center for Development Communication (CDC) submitted a proposal that was accepted by the Task Force and the Government of Sudan/EPI. Between October 2001 and August 2002, the CDC conducted a KAP study about polio eradication in Sudan using qualitative (Focus Group) and quantitative (Survey) research methods. The study was funded by UNICEF Sudan.

[1] Request For Proposals, UNICEF Khartoum, June 4, 2001, Annex 1.

This report presents the results of the quantitative survey as well as a brief summary of the results of the qualitative phase. . The report is divided into four sections. Part one is the Introduction where the background of the survey, country background, survey objective, and summary of the focus group research are presented.

The second part covers the survey methodology where the sample design, the questionnaire, and the fieldwork processing are explained. In the third part, the sample characteristics and data quality are elaborated by looking at the response rates, age distribution, and characteristics of the household population. The last and fourth part presents the results of the study.

1.2. Survey Objectives

The objectives of the KAP study concerning polio in Sudan are :

To establish a baseline for selected indicators in mass media exposure, knowledge of immunization, attitudes and practices relating to routine immunization and polio immunization in Sudan.
To assist the Government of Sudan and UNICEF by identifying segmented target groups, key channels for future media campaigns, priority and communication activities and messages.

1.3. Summary of the Focus Group Study

This KAP study for polio eradication in Sudan had two phases, one of which was qualitative. This was accomplished through the use of focus groups. During this phase, data was collected that could be used in message and strategy design by UNICEF and partners. In addition this phase helped design the questionnaire and prepare the field work for the quantitative phase.

A detailed report of the qualitative phase was already provided to UNICEF and the Government of Sudan. The observations summary has been updated based on secondary analysis of the tapes.

The topics that were discussed in the focus groups included media habits of the people, such as newspaper acquisition, frequency of readership/listening/watching, subjects read/watched/listened most, the type of newspaper/radio read/listened, i.e., domestic or/and foreign, the type of station frequented and programs listened/watched most. The other topics discussed were general health issues relating to Knowledge, Attitude, and Practice as well as issues regarding people's knowledge, attitude, and practice concerning immunization in general and polio vaccination in particular (The full discussion guide is included as an annex).

The qualitative phase of the research studied male and female caregivers who have immunized and who have not immunized their children. The Focus Group Discussions took place in four states, five provinces, eight localities, seven urban neighborhoods and three villages in a rural setting (Table 1). There were 10 focus groups, out of which seven were conducted in an urban setting while three were in a rural area. In two of the focus groups it was only men who took part, whilst in the remaining ten groups both women and men did participate in the discussions.

Study Sites and Focus Groups Characteristics

State	Province	Neighborhood/Urban	Village/Rural	Participants
Khartoum	Khartoum	Barti wa Elata		Male/Female
Khartoum	Khartoum	Elgose		Male/Female
Khartoum	Omdurman	Banat Garib		Female
Khartoum	Omdurman		Elkou	Male/Female
Kassala	Kassala	Elsoriba		Male/Female
Kassala	Kassala		Helat Musa	Male/Female
Nahr Elneel	Eldamar	Elmurabaat Sharig		Male/Female
Nahr Elneel	Eldamar		Elemtidad Elshargi	Female
North Kurdofan	Sheikan	Elsalam		Male/Female
North Kurdofan	Sheikan	Elfalata		Male/Female

The sites where the focus group discussions took place were randomly selected in the five provinces in Central, North, East and Western regions of Sudan. For example, the Omdurman province in the Khartoum state contains four localities. Two of these localities are urban and the two are rural. The study then randomly selected one urban and one rural locality where the focus group discussions shall take place.

Observations (*This is a summary – detailed transcripts and a report were provided to UNICEF and the GOVERNMENT OF SUDAN earlier in the study*)

1.3.1. Media Habits:

In urban areas, most respondents read newspapers (especially local newspapers). In most cases men buy the newspapers, their wives read them, and friends borrow them. In rural areas, most respondents don't read newspapers, especially the women because a lot of them are illiterate. Most respondents listen to the radio, mostly to the news. Urban

respondents say they listen to national and international radio stations such as BBC or Radio Monte Carlo, whereas most rural respondents only listen to national and local stations. Most urban respondents watch TV (women and men), whereas much fewer rural respondents watch TV because they have no electricity or because they do not have TVs. Female respondents who watch TV like watching programs with popular shows like Saha Wa Afia, Elmusalsal Elyoumi, and Ala Eikhat. Caregivers who participated in the focus groups listen to or watch health related programs like the radio program Eiada Aia Elhawa or Saha Wa Afia. Among the reasons why they tune to health programs, the respondents said:
Because you cannot find a doctor at the moment you need one, you can then ask him on the phone in the program and get an answer to your questions or get a free consultation. (From Kassala State, Elsoriba neighborhood).

1.3.2. General Health Issues

All respondents, urban and rural, men and women, agree that a healthy child weighs enough, eats and drinks well and plays. They also all agree that proper nutrition, breast-feeding, immunization and cleanliness are all important to keep a child healthy. When a child is sick most respondents say they immediately take the child to the doctor or the nearest health facility and do not resort to other ways of curing their child. A few women say they don't take their children to the doctor because it's too expensive. In most cases, the nearest health facility is used only when a child is ill, otherwise people cannot afford it. The culture of routine check up is non-existent, because, for some respondents, hospitals are for sick people only, consultations are expensive and the services are poor in terms of availability of medicines and other equipment. One woman from Nahr Elneel State, Eldamar Province, Atbara Locality Elemtidad Elshargi said she wouldn't take a healthy child to the health center because she would be afraid that her child would catch a disease. Although all say they trust doctors more than anyone else, some of them say they trust grand mothers' advice because of their experience. For example, people form their opinion based on personal experience:

"My daughter suffered from abdominal pain, I took her to the doctor. But the doctor's treatment didn't cure her. Then my grandmother cured her and my child is well now." (From North Kurdofan, Elsalam neighborhood).

Other people go to traditional healers and religious figures instead of health facilities for diseases such as psychotic disorders, jaundice, cancer, fractures, muscle spasms and strain, as two respondents from Khartoum State, Omdurman province and North Kordufan state, Shakan province respectively explain:

"I have a sixteen-year- old son who had been ill since he was one year old. I took him to Omdurman hospital and Elfadal hospital, then to Omdurman, and to El Bohera hospital with no success. Finally, I took him to a traditional healer who made incisions on his abdomen, and now he is well." (From Omdurman, Elkou village)

El ain can only be cured by religious people. (From North Kordufan, Elsalam village)

1.3.3. Vaccination

Most respondents, women and men, rural and urban, think immunization is necessary because it prevents disease. Those who do not vaccinate their children think it causes fever or paralysis as the following respondents explain:

"My neighbor had her daughter vaccinated and then she became paralyzed because of the vaccination. After that, she never allowed her other children to be vaccinated." (From Kassal, Helat Musa neighborhood)

"Fourteen years ago, In Allakareem neighborhood, five children who were vaccinated became paralyzed. So, because of this, one of my relatives has never vaccinated his children. "(From North Kordufan, Elsalam neighborhood)

People reported or stated that the vaccination teams' interaction with the local people is good. They greet them and give sweets to the children and put the immunizing drops in the children's mouths. Some respondents wonder why the vaccination team only vaccinates the children who happen to be at home, and doesn't ask about the children who are out in the field, or feeding cattle.

"They first say aslaam alikum then they register the name of a child and his/her age and give him/her the dose and leave. They don't mention anything else." (From Nahr Elneel State, Atbara locality, Elemtidad village)

"They should ask how many children you have but they didn't. Many times they vaccinate the children who are at home, but they don't ask about the children who are feeding the cattle in the forest, so those don't get vaccinated. " (From Khartoum state, Omdurman province, Elkou village)

In some cases, caregivers are not at home when the vaccination team comes. Other respondents think that Allah will protect their children and that there is no need for vaccination.

Most urban respondents, but by far fewer rural respondents, are aware of the National Immunization Days (NIDs). They generally hear about NIDs from the radio, TV, miking, and mosques. The rest come to know about it when vaccination teams come to their homes.

To ensure vaccination, discussants suggest the following:

- Making vaccination compulsory
- Health education
- Intensive media campaigns
- Recruiting vaccination teams from within each community
- Issue a card to pupils who are vaccinated and schools requiring them to show cards
- Notifying the people the exact day of vaccination beforehand

Observations that may help in reshaping immunization program strategies:

1.3.4. Vaccination/Immunization

-The question of children left unvaccinated because they were not at home begs to be addressed. Could it be because they are at school, out in the field with the cattle, visiting a relative, etc.?
-Children miss vaccination because parents were not at home, as most go out early and return late.
-People's attitude towards vaccination as causing fever should be studied.
-One should also investigate why people think that "vaccination causes paralysis." This type of belief was recurrent in several focus group sessions.

1.3.5. Health Risk Communication

-The need for more health education and information campaigns concerning immunization and its effects is felt when one observes that people are afraid of vaccination through injection because it causes fever.
-Using religious officials and other social networks during the education and information campaigns as they might help reach groups who believe that "Allah will protect my children, we don't need vaccination."
-Recourse to older people during the education and information campaigns to combat the idea that is expressed by some old people who say that they have never been vaccinated and that they have been healthy their whole lives, therefore children do not need vaccination.
-Reaching traditional healers and religious figures and discussing with them in the context of a workshop in order to produce health messages that will encourage people to vaccinate their children.

1.4. Survey Methodology

1.4.1. Sample Design

The sample of the KAP study concerning polio eradication in Sudan was designed to provide indicators in media exposure, knowledge, attitudes, and practices of immunization relating to polio immunization and NIDs in Sudan. The sample was selected out of seven states from regions in North, East, Central, West and South. There was a multi-stage cluster sampling involving states, provinces, localities, neighborhoods, and then households. Within the randomly selected households, adults are selected based on gender where within each gender respondents are selected randomly. In the case of children, the random selection is done among the age group of 12-15 years old. Finally, a random sample of 2825 adults and 700 children were drawn. Full technical details of the sample are included in Appendix B.

1.4.2. Questionnaires

The KAP Sudan survey questionnaires were administered in each household whereby adults aged 16 and over and children 12-15 years of age who live in a household took part. The questionnaires had different parts where the first part comprised of a household identification, and a household member form, whereas the second part carried the individual questionnaire with sections dealing with background characteristics – inquiring about sex, age, education, media habit, vaccination and other general health issues, KAP about polio, and finally knowledge and source of information about National Immunization Days (NID). For the full questionnaire, please refer to Appendix C.

The questionnaire was first prepared in English by the external consultants to then be translated to Arabic by the National consultant and the head of the Research Directorate at the ministry of Health. The questionnaires were pre-tested as part of the training of the interviewers and modifications were then made based on the pre-test results.

1.4.3. Fieldwork and Processing

A two day training of the four supervisors and three interviewers from the Khartoum state was conducted between May 11th and 12th by the two external consultants and the national consultant. The supervisors then trained the 18 interviewers from the remaining six states in the respective state where they would be administering the survey

questionnaires. Though the field work started in the middle of June, it had to continue up to first week of September due to some logistical problems.

The data collected from the field was entered into the data system of the Research Directorate of the Ministry of Health research directorate using SPSS software.

The results are presented as follows:

1. Access to Mass media in Sudan (that can drive future media decisions). This section presents results regarding TV, Radio and Newspapers.
2. Knowledge Indicators about Polio. This section presents results regarding whether people have heard about the disease, and whether they know at what age you are most vulnerable to get the disease.
3. Attitudes, Practices and Beliefs about Polio and Immunization in General. This section covers issues related to surveillance, immunization as well as decision making in the family.
4. National Immunization Days (NIDS). Since NIDS have been such an important factor in immunizing children, this special section looks at knowledge of NIDS, as well as sources of information for NIDS. Since the linkage between NIDS and so called "routine EPI" has long been debated, the report also looks at possible impacts of NIDS and other factors.
5. Reaching the most vulnerable. A multivariate analysis of **15 different indicators** helped identify affinity groups that UNICEF and the GOVERNMENT OF SUDAN can use for better targeting of messages and materials about immunization and NIDS. The ten different groupings are presented in a series of tables.

Data was entered using SPSS, but the data files were analyzed using ModaLisa software developed in Europe. The data is presented in tables in which certain cells are highlighted by either a green shade or a blue shade. The darker the green shade the more that the behavior for this group is distinguished positively. In Table 1, for example the darkest green shading is for those who have access to radio and live in resource rich Gezira state. (91.2%). They distinguish themselves from what would have been predicted for the sample as a whole. This means that this group is far more likely to have access to radio than the average. Conversely the dark blue for those who do listen to radio and live in conflict ridden Upper Nile (55.4%) deviate but in a negative way (In other words they are more likely not to listen to radio, even though the figure is above half). In both cases this is statistically significant.

In selecting the data to present, the choice was based on a proposal submitted to UNICEF and the MOH in the summer of 2002. Given some minor problems with data entry in Sudan, we selected those indicators that we felt could provide the Polio team in Khartoum with data to drive media channel selection (i.e. the access issues); to formulate messages that could resonate with the population (the Focus Groups) and to deal with issues of routine EPI vs. NIDS. The data is disaggregated by state, gender, level of

education, and age. In addition the multivariate analysis identifies a clearly vulnerable group that requires special attention.

2. Access to Mass Media

2.1. Access to Radio

Access to radio is very widespread in Sudan, with 82% of the population having access to a radio set. Within this very positive picture, there are significant regional disparities. Access in Gezira State (91%) is nearly twice what it is in Upper Nile (55%) indicating that alternative communication strategies need to be developed for this relatively "radio poor" state.

Gezira, South Kordofan and Kassala states have radio access that is better than what would be expected, and these states are generally "media rich" while in Upper Nile, access is worse than in other places, and this state falls into the "media poor" category.

Both men and women have reasonably good access to radio. In general close to 85% of men have access to radio, and 80% of women. There is a slight gender disparity in the data, and in terms of divergent trends, men are more likely than women to have access to radio. Since close to one fifth of the women in Sudan have no access to radio (see table 4), complimentary communication strategies employing traditional communication channels could be developed to address this segment of the audience.
Young people (under the age of 16) are less likely to have access to radio than adolescents and adults. While close to 85% of the over 16 year population has access to radio, this is true for only about three quarters of children between the ages of 12 and 15. As in other developing countries this reveals that even where homes have a radio, not everyone listens. If children are to be reached this may have to be through alternative media, including both traditional and other types of schools.
There are significant disparities in radio access depending upon whether or not you have been to school. A third of the people that have never been to school do not have access to radio. Since these people are also likely not to be able to read and write, there is an indication that alternative strategies of communication need to be developed to reach this group.

The data is presented in Tables 1 to 8

Table 1 Access to Radio (States) Values

	Yes	No	Total
Khartoum	763	180	943
River Nile	257	47	304
Gezira	620	60	680
S Kordofan	261	43	304
S Darfur	473	87	560
Upper Nile	196	158	354
Kassala	325	55	380
Total	2895	630	3525

Table 2 Access to Radio (States) Percentages

	Yes	No	Total
Khartoum	80,9%	19,1%	100,0%
River Nile	84,5%	15,5%	100,0%
Gezira	91,2%	8,8%	100,0%
S Kordofan	85,9%	14,1%	100,0%
S Darfur	84,5%	15,5%	100,0%
Upper Nile	55,4%	44,6%	100,0%
Kassala	85,5%	14,5%	100,0%
Total	82,1%	17,9%	100,0%

Table 3 Access to Radio (Gender) Values

	Yes	No	Total	
Male	1491	271	1762	
Female	1404	359	1763	
Total	2895	630	3525	

Table 4 Access to Radio (Gender) Percentages

	Yes	No	Total	
Male	84,6%	15,4%	100,0%	
Female	79,6%	20,4%	100,0%	
Total	82,1%	17,9%	100,0%	

Table 5 Access to Radio (Age) Values

	Yes	No	Total	
12-15 years	523	185	708	
16 years+	2372	445	2817	
Total	2895	630	3525	

Table 6 Access to Radio (Age) Percentages

	Yes	No	Total	
12-15 years	73,9%	26,1%	100,0%	
16 years+	84,2%	15,8%	100,0%	
Total	82,1%	17,9%	100,0%	

Table 7 Access to Radio (Education Level) Values

	Yes	No	Total	
0	472	234	706	
Less than 6 years	484	80	564	
6 to 12 years	933	112	1045	
More than 12 years	162	22	184	
Currently Enrolled	844	182	1026	
Total	2895	630	3525	

Table 8 Access to Radio (Education Level) Percentages

	Yes	No	Total	
0	66,9%	33,1%	100,0%	
Less than 6 years	85,8%	14,2%	100,0%	
6 to 12 years	89,3%	10,7%	100,0%	
More than 12 years	88,0%	12,0%	100,0%	
Currently Enrolled	82,3%	17,7%	100,0%	
Total	82,1%	17,9%	100,0%	

2.2. Access to Television

Access to Television is relatively high with 73% of the population having access to television. Even within this positive picture there are regional disparities. People living in Khartoum, River Nile, Gezira and Kassala are more likely than the average to have access to TV. Access is very high in these states (a similar finding for radio) with all three states reporting access above 80%. Television access is very low in Upper Nile, and fairly low in the states of South Darfur and South Kordofan. In 1995 a BBC survey that was conducted in Northern Sudan found that TV ownership was 67% in Khartoum and other urban areas, but only 11% in rural areas. The data from this survey suggest that either data was collected mainly from urban and peri-urban areas, or that there has been a significant growth in the number of TV sets that needs to be explained (i.e changes in tax laws or import duties etc). Access to TV does not mean ownership. There is a tradition of bringing the TV set into the compound so t hat the neighbors can watch. This increases access without increasing the number of sets.

There is a similar gender disparity in the data with regards to TV as for radio access. While 76% of the men have access to TV, only 70% of the women have access. Again as with radio men are more likely to have access to TV than women. It should be stated however that access for both is fairly high.

Children between the age of 12 and 15 are more likely to access TV than are adolescents or adults, indicating that TV may be the appropriate medium in Sudan to reach younger children. Even so, close to a quarter of the children do not watch TV, indicating that alternative channels still need to be developed for this group.

A similar disparity is observed with respect to TV as was the case for Radio. People with no education have relatively low access to TV. People with more than twelve years of schooling are more likely to watch TV. Since education is usually a proxy indicator for income levels, the situation in Sudan may be similar to countries where income level is an indicator of television access. In terms of divergent trends, you are more likely to

watch TV if you have more than six years of schooling. You are less likely to have access to TV if you have never been to school. The data suggests a correlation between level of education and watching TV. Often level of education may be used as a proxy indicator for level of income; the result indicates that TV may not be a medium to use to reach the most vulnerable groups.

The data for TV access is presented in Tables 9-16

Table 9 Access to TV (States) Values

	Yes	No	Total	
Khartoum	764	178	942	
River Nile	263	41	304	
Gezira	596	84	680	
S Kordofan	196	108	304	
S Darfur	346	214	560	
Upper Nile	107	247	354	
Kassala	308	72	380	
Total	2580	944	3524	

Table 10 Access to TV (States) Percentages

	Yes	No	Total	
Khartoum	81,1%	18,9%	100,0%	
River Nile	86,5%	13,5%	100,0%	
Gezira	87,6%	12,4%	100,0%	
S Kordofan	64,5%	35,5%	100,0%	
S Darfur	61,8%	38,2%	100,0%	
Upper Nile	30,2%	69,8%	100,0%	
Kassala	81,1%	18,9%	100,0%	
Total	73,2%	26,8%	100,0%	

Table 11 Access to TV (Gender) Values

	Yes	No	Total	
Male	1342	419	1761	
Female	1238	525	1763	
Total	2580	944	3524	

Table 12 Access to TV (Gender) Percentages

	Yes	No	Total	
Male	76,2%	23,8%	100,0%	
Female	70,2%	29,8%	100,0%	
Total	73,2%	26,8%	100,0%	

Table 13 Access to TV (Age) Values

	Yes	No	Total	
12-15 years	536	171	707	
16 years+	2044	773	2817	
Total	2580	944	3524	

Table 14 Access to TV (Age) Percentages

	Yes	No	Total	
12-15 years	75,8%	24,2%	100,0%	
16 years+	72,6%	27,4%	100,0%	
Total	73,2%	26,8%	100,0%	

Table 15 Access to TV (Education Level) Values

	Yes	No	Total	
0	296	410	706	
Less than 6 years	388	176	564	
6 to 12 years	875	170	1045	
More than 12 years	162	22	184	
Currently Enrolled	859	166	1025	
Total	2580	944	3524	

Table 16 Access to TV (Education Level) Percentages

	Yes	No	Total	
0	41,9%	58,1%	100,0%	
Less than 6 years	68,8%	31,2%	100,0%	
6 to 12 years	83,7%	16,3%	100,0%	
More than 12 years	88,0%	12,0%	100,0%	
Currently Enrolled	83,8%	16,2%	100,0%	
Total	73,2%	26,8%	100,0%	

2.3. Newspaper Readership

Newspaper readership in Sudan is very low. Even in relatively media rich states such as Gezira and Khartoum, there are very few newspaper readers. In Khartoum only about 7% of the people read a newspaper, and in Gezira it is close to 9%. South Kordofan has a higher proportion of newspaper readers.

There is less gender disparity for newspaper readership than for the other mass media. Given the small number of readers, this is not very significant for communication strategies to address polio or other health issues.

In terms of readership, as might be expected 9 out of every 10 readers is above the age of 16, indicating that if newspapers were used in a communication effort for Polio they should target the adult population.

Surprisingly – almost all the newspaper readers have less than six years of schooling. This needs further analysis as to why; perhaps newspapers cater to a specific audience. It may also be that the more educated segments of the population may seek outside alternatives to the local press which they judge to be of lower quality.

The data on newspapers is presented in tables 17-24.

Table 17 Access to Newspapers (States) Values

	Yes	No	Total	
Khartoum	64	879	943	
River Nile	32	272	304	
Gezira	63	617	680	
S Kordofan	42	262	304	
S Darfur	50	510	560	
Upper Nile	9	345	354	
Kassala	43	337	380	
Total	303	3222	3525	

Table 18 Access to Newspapers (States) Percentages

	Yes	No	Total	
Khartoum	6,8%	93,2%	100,0%	
River Nile	10,5%	89,5%	100,0%	
Gezira	9,3%	90,7%	100,0%	
S Kordofan	13,8%	86,2%	100,0%	
S Darfur	8,9%	91,1%	100,0%	
Upper Nile	2,5%	97,5%	100,0%	
Kassala	11,3%	88,7%	100,0%	
Total	8,6%	91,4%	100,0%	

Table 19 Access to Newspapers (Gender) Values

	Yes	No	Total	
Male	167	1595	1762	
Female	136	1627	1763	
Total	303	3222	3525	

Table 20 Access to Newspapers (Gender) Percentages

	Yes	No	Total	
Male	9,5%	90,5%	100,0%	
Female	7,7%	92,3%	100,0%	
Total	8,6%	91,4%	100,0%	

Table 21 Access to Newspapers (Age) Values

	Yes	No	Total	
12-15 years	20	688	708	
16 years+	283	2534	2817	
Total	303	3222	3525	

Table 22 Access to Newspapers (Age) Percentages

	Yes	No	Total	
12-15 years	6,6%	21,4%	20,1%	
16 years+	93,4%	78,6%	79,9%	
Total	100,0%	100,0%	100,0%	

Table 23 Access to Newspapers (Education Level) Values

	Yes	No	Total	
0		706	706	
Less than 6 years	301	263	564	
6 to 12 years	1	1044	1045	
More than 12 years		184	184	
Currently Enrolled	1	1025	1026	
Total	303	3222	3525	

Table 24 Access to Newspapers (Education Level) Percentages

	Yes	No	Total	
0		21,9%	20,0%	
Less than 6 years	99,3%	8,2%	16,0%	
6 to 12 years	,3%	32,4%	29,6%	
More than 12 years		5,7%	5,2%	
Currently Enrolled	,3%	31,8%	29,1%	
Total	100,0%	100,0%	100,0%	

3. Issues related to Knowledge about Polio

A series of questions were asked about Polio, to determine knowledge, attitudes and practices in Sudan. We have selected key indicators for which there is clean data and which may be helpful in guiding decisions.

3.1. Basic Knowledge about Polio

There is near universal awareness of polio, which could be an expected outcome after so many rounds of National Immunization Days, especially using a house to house strategy. But there is an exception to this in Upper Nile and in South Kordofan. UNICEF & the MOH should wonder why there is still about **5 percent of the population that reports not having heard about Polio**. Nearly half of these people are located in the state of Upper Nile, and the others are scattered all over the country, indicating pockets that may have been missed during the NIDS. Knowledge is highest in Gezira, which is also mass media rich. There is evidence that knowledge of polio is higher in states that have higher access to mass media. This suggests that in order to penetrate these marginal regions, a greater focus on social networks and face to face communication may be needed.

There is no significant gender disparity in knowledge about Polio. This could be because males play a significant role in decisions taken about the health of children. Men are involved in decision making either alone or together with the mother in more than half the households interviewed.
Children are more likely to have less knowledge about Polio, indicating that alternative channels such as schools to inform them may not have been used. It may also mean that they have not been reached by any means. While more than half the people who claim no knowledge of Polio are above 16, forty percent are below the age of 15.
While 55% of those who have not heard of polio have never been to school, 1 out of every five is currently in school. This finding suggests that any strategy to reach children with information on either polio or routine EPI through the schools needs re-thinking in order to reach more children.

Table 25 : Heard of Polio by States (Question 401)

	Yes	No	Total	
Khartoum	916	23	939	
River Nile	295	9	304	
Gezira	673	4	677	
S Kordofan	274	28	302	
S Darfur	544	15	559	
Upper Nile	270	83	353	
Kassala	361	18	379	
Total	3333	180	3513	
	Yes	No	Total	
Khartoum	97,6%	2,4%	100,0%	
River Nile	97,0%	3,0%	100,0%	
Gezira	99,4%	,6%	100,0%	
S Kordofan	90,7%	9,3%	100,0%	
S Darfur	97,3%	2,7%	100,0%	
Upper Nile	76,5%	23,5%	100,0%	
Kassala	95,3%	4,7%	100,0%	
Total	94,9%	5,1%	100,0%	

Table 26 Heard of Polio by Gender (Question 401)

	Yes	No	Total	
Male	1685	76	1761	
Female	1648	104	1752	
Total	3333	180	3513	
	Yes	No	Total	
Male	95,7%	4,3%	100,0%	
Female	94,1%	5,9%	100,0%	
Total	94,9%	5,1%	100,0%	

Table 27 Heard of Polio by Age (Question 401)

	Yes	No	Total	
12-15 years	635	73	708	
16 years+	2698	107	2805	
Total	3333	180	3513	
	1	2	Total	
12-15 years	89,7%	10,3%	100,0%	
16 years+	96,2%	3,8%	100,0%	
Total	94,9%	5,1%	100,0%	

Table 28 Heard of Polio by Education Level (Question 401)

	Yes	No	Total	
0	604	100	704	
Less than 6 years	542	20	562	
6 to 12 years	1020	20	1040	
More than 12 years	178	3	181	
Currently Enrolled	989	37	1026	
Total	3333	180	3513	
	Yes	No	Total	
0	85,8%	14,2%	100,0%	
Less than 6 years	96,4%	3,6%	100,0%	
6 to 12 years	98,1%	1,9%	100,0%	
More than 12 years	98,3%	1,7%	100,0%	
Currently Enrolled	96,4%	3,6%	100,0%	
Total	94,9%	5,1%	100,0%	

3.2. At what age are you likely to get Polio

Close to 70 percent of the sample know that children under 5 are likely to get Polio. People in Khartoum and Gezira of central Sudan are more likely to know this. People in Upper Nile (southern Sudan) are more likely either to not know or to think that anybody is susceptible to get the disease.

Education is a strong determinant for specific knowledge about Polio. The results show that the percentage of those who know that it is children under 5 that are most vulnerable increases with the level of education. Only 48% of those never attending schools gave that answer; whereas 84% (nearly twice as many) of those who completed 12 years of schooling provided the answer.

Table 29 Most at Risk of Polio by States (Question 405)

	Don't Know	Anybody	Children Under 5	Children Over 5	Adults	Other	Total
Khartoum	43	60	755	72	8	1	939
River Nile	14	36	225	17	4	8	304
Gezira	17	72	527	48	12	1	677
S Kordofan	49	34	191	8	18	2	302
S Darfur	63	97	357	30	10	2	559
Upper Nile	82	99	121	47	4		353
Kassala	33	57	269	17	2		378
Total	301	455	2445	239	58	14	3512
	Don't Know	Anybody	Children Under 5	Children Over 5	Adults	Other	Total
Khartoum	4,6%	6,4%	80,4%	7,7%	,9%	,1%	100,0%
River Nile	4,6%	11,8%	74,0%	5,6%	1,3%	2,6%	100,0%
Gezira	2,5%	10,6%	77,8%	7,1%	1,8%	,1%	100,0%
S Kordofan	16,2%	11,3%	63,2%	2,6%	6,0%	,7%	100,0%
S Darfur	11,3%	17,4%	63,9%	5,4%	1,8%	,4%	100,0%
Upper Nile	23,2%	28,0%	34,3%	13,3%	1,1%		100,0%
Kassala	8,7%	15,1%	71,2%	4,5%	,5%		100,0%
Total	8,6%	13,0%	69,6%	6,8%	1,7%	,4%	100,0%

Table 30 Most at risk of Polio by Education Level (Question 405)

	Don't Know	Anybody	Children Under 5	Children Over 5	Adults	Other	Total
0	149	153	338	38	26		704
Less than 6 years	50	78	381	46	7		562
6 to 12 years	22	79	859	63	9	7	1039
More than 12 years		15	153	12	1		181
Currently Enrolled	80	130	714	80	15	7	1026
Total	301	455	2445	239	58	14	3512
	Don't Know	Anybody	Children Under 5	Children Over 5	Adults	Other	Total
0	21,2%	21,7%	48,0%	5,4%	3,7%		100,0%
Less than 6 years	8,9%	13,9%	67,8%	8,2%	1,2%		100,0%
6 to 12 years	2,1%	7,6%	82,7%	6,1%	,9%	,7%	100,0%
More than 12 years		8,3%	84,5%	6,6%	,6%		100,0%
Currently Enrolled	7,8%	12,7%	69,6%	7,8%	1,5%	,7%	100,0%
Total	8,6%	13,0%	69,6%	6,8%	1,7%	,4%	100,0%

4. Issues related to Attitudes, Practices and Beliefs

A series of questions were asked in the study to determine attitudes and practices as they relate to the question of Polio.

In this report, we focus on those that are the most relevant for the post NIDS process – namely the issue of surveillance, and routine EPI among others.

4.1. Can Polio be prevented?

In measuring knowledge, we have really measured awareness or recall (by asking "Have you heard of Polio"). Measuring this indicator will help us to identify what may

be "superficial" knowledge. By asking a question like "Can Polio be prevented" we are attempting to find out whether there is depth to the recall. This may be called "Correct Knowledge".

There is a consistent gap between knowledge, attitudes and practices or behaviors. The gaps help identify areas of weakness in the communication strategy and should be addressed with either changes in the messages, or the messengers for the campaigns.

There is also a gap between the higher levels of knowledge and the levels of correct knowledge. In this case 95 percent of the respondents have heard of Polio, while 77 percent know that it can be prevented. At the same time the numbers of households reached through NIDS is nearly universal.

In spite of this, there is nearly a quarter of the population that believes that it cannot be prevented or is not sure. This figure is broken down in the following tables.

There are significant disparities according to what State one lives in. People living in Khartoum are far more likely to believe that Polio is preventable. People living in South Darfur are far more likely to believe that the disease is not preventable. Those living in either South Kordofan or Upper Nile are more likely to be unsure. Responses to this question suggest that there are lingering pockets where attitudes may still be resistant to the UNICEF and GOVERNMENT OF SUDAN driven programme.

Age disparity is statistically significant. The data shows that people over 16 are more likely to believe that Polio is preventable. More than 80 percent of those 16 and above believe that the disease is preventable. This is true only for 64 percent of those aged 12 to 15. This again indicates the need to engage younger people through communication.

In terms of education we can observe that education is a determinant of correct knowledge about prevention of polio. More than 90 percent of those who have more than six years of schooling know that Polio can be prevented. This is true for less than 60 percent of those who have never been to school, and 73% of those that have less than six years of formal schooling.

Table 31 Can Polio be Prevented? By States (Question 502)

	Don't Know	Yes	No	Total	
Khartoum	49	819	71	939	
River Nile		240	64	304	
Gezira	20	642	15	677	
S Kordofan	85	184	33	302	
S Darfur		330	229	559	
Upper Nile	106	150	97	353	
Kassala	32	337	9	378	
Total	292	2702	518	3512	
	Don't Know	Yes	No	Total	
Khartoum	5,2%	87,2%	7,6%	100,0%	
River Nile		78,9%	21,1%	100,0%	
Gezira	3,0%	94,8%	2,2%	100,0%	
S Kordofan	28,1%	60,9%	10,9%	100,0%	
S Darfur		59,0%	41,0%	100,0%	
Upper Nile	30,0%	42,5%	27,5%	100,0%	
Kassala	8,5%	89,2%	2,4%	100,0%	
Total	8,3%	76,9%	14,7%	100,0%	

Table 32 Can Polio be Prevented ? by Age (Question 502)

	Don't Know	Yes	No	Total	
12-15 years	105	455	148	708	
16 years+	187	2247	370	2804	
Total	292	2702	518	3512	
	Don't Know	Yes	No	Total	
12-15 years	14,8%	64,3%	20,9%	100,0%	
16 years+	6,7%	80,1%	13,2%	100,0%	
Total	8,3%	76,9%	14,7%	100,0%	

Table 33 Can Polio be Prevented? by Education Level (Question 502)

	Don't Know	Yes	No	Total	
0	131	409	164	704	
Less than 6 years	52	411	99	562	
6 to 12 years	29	944	66	1039	
More than 12 years		167	14	181	
Currently Enrolled	80	771	175	1026	
Total	292	2702	518	3512	
	Don't Know	Yes	No	Total	
0	18,6%	58,1%	23,3%	100,0%	
Less than 6 years	9,3%	73,1%	17,6%	100,0%	
6 to 12 years	2,8%	90,9%	6,4%	100,0%	
More than 12 years		92,3%	7,7%	100,0%	
Currently Enrolled	7,8%	75,1%	17,1%	100,0%	
Total	8,3%	76,9%	14,7%	100,0%	

4.2. What to do when there is weakness of limbs?

Knowledge about the important issue seems to have penetrated more in South Kordofan (91%) and Kassala state (87%) and River Nile (88%) , and is relatively less well perceived by people living in Khartoum (68%). This would seem to indicate that more of an effort needs to be made in Khartoum to ensure that adequate surveillance is undertaken. The data shows that there is little competition for the regular health system coming from the

traditional practitioners. Fewer than 3 percent of respondents would take a child to a traditional healer when the child suffers weakness of limbs.

82.2% of the respondents over 16 would take the child to a clinic immediately, and 69.2 % of children would do the same. The data suggests that the remaining percentage of children would either do nothing; would not know what to do; or would wait.

School goers are more likely to know that a child should be taken to a clinic immediately. Those with no schooling are more likely to do nothing, and those currently enrolled are more likely to not know what to do.

Table 34 Action taken in case of Weakness of Limbs by States (Question 309)

	Don't Know	Clinic Immediately	Clinic Later	Traditional Healer Immediately	Traditional Healer Later	Wait	Do Nothing	Other	Total
Khartoum	156	640	21	7	2	29	20	64	939
River Nile	5	269	9	9		1	3	8	304
Gezira	39	549	34	3				50	675
S Kordofan	11	275	8	8					302
S Darfur	17	456	42	33	4	2	2	3	559
Upper Nile	27	276	15	11	3	6	14	1	353
Kassala	14	330	21	8	1			5	379
Total	269	2795	150	79	10	38	39	131	3511
	Don't Know	Clinic Immediately	Clinic Later	Traditional Healer Immediately	Traditional Healer Later	Wait	Do Nothing	Other	Total
	0	1	2	3	4	5	6	9	Total
Khartoum	16,6%	68,2%	2,2%	,7%	,2%	3,1%	2,1%	6,8%	100,0 %
River Nile	1,6%	88,5%	3,0%	3,0%		,3%	1,0%	2,6%	100,0 %
Gezira	5,8%	81,3%	5,0%	,4%				7,4%	100,0 %
S Kordofan	3,6%	91,1%	2,6%	2,6%					100,0 %
S Darfur	3,0%	81,6%	7,5%	5,9%	,7%	,4%	,4%	,5%	100,0 %
Upper Nile	7,6%	78,2%	4,2%	3,1%	,8%	1,7%	4,0%	,3%	100,0 %
Kassala	3,7%	87,1%	5,5%	2,1%	,3%			1,3%	100,0 %
Total	7,7%	79,6%	4,3%	2,3%	,3%	1,1%	1,1%	3,7%	100,0 %

Table 35Action taken in case of Weakness of Limbs by Age (Question 309)

	Don't Know	Clinic Immediately	Clinic Later	Traditional Healer Immediately	Traditional Healer Later	Wait	Do Nothing	Other	Total
	0	1	2	3	4	5	6	9	Total
12-15 years	101	488	39	13	2	8	18	36	705
16 years+	168	2307	111	66	8	30	21	95	2806
Total	269	2795	150	79	10	38	39	131	3511
	Don't Know	Clinic Immediately	Clinic Later	Traditional Healer Immediately	Traditional Healer Later	Wait	Do Nothing	Other	Total
	0	1	2	3	4	5	6	9	Total
12-15 years	14,3%	69,2%	5,5%	1,8%	,3%	1,1%	2,6%	5,1%	100,0 %
16 years+	6,0%	82,2%	4,0%	2,4%	,3%	1,1%	,7%	3,4%	100,0 %
Total	7,7%	79,6%	4,3%	2,3%	,3%	1,1%	1,1%	3,7%	100,0 %

Table 36 Action taken in case of Weakness of Limbs by Education Level (Question 309)

	Don't Know	Clinic Immediately	Clinic Later	Traditional Healer Immediately	Traditional Healer Later	Wait	Do Nothing	Other	Total
	0	1	2	3	4	5	6	9	Total
0	66	514	35	25	8	11	18	27	704
Less than 6 years	22	481	21	18		2	5	13	562
6 to 12 years	49	889	47	10		8	3	34	1040
More than 12 years	11	149	6	1		4		10	181
Currently Enrolled	121	762	41	25	2	13	13	47	1024
Total	269	2795	150	79	10	38	39	131	3511
	Don't Know	Clinic Immediately	Clinic Later	Traditional Healer Immediately	Traditional Healer Later	Wait	Do Nothing	Other	Total
	0	1	2	3	4	5	6	9	Total
0	9,4%	73,0%	5,0%	3,6%	1,1%	1,6%	2,6%	3,8%	100,0 %
Less than 6 years	3,9%	85,6%	3,7%	3,2%		,4%	,9%	2,3%	100,0 %
6 to 12 years	4,7%	85,5%	4,5%	1,0%		,8%	,3%	3,3%	100,0 %
More than 12 years	6,1%	82,3%	3,3%	,6%		2,2%		5,5%	100,0 %
Currently Enrolled	11,8%	74,4%	4,0%	2,4%	,2%	1,3%	1,3%	4,6%	100,0 %
Total	7,7%	79,6%	4,3%	2,3%	,3%	1,1%	1,1%	3,7%	100,0 %

4.3. Do you vaccinate a child that has a fever?

Respondents were asked if they agreed with the statement that it was not safe to vaccinate a child with a fever.

The results show that more than 90% disagree with the statement. One can distinguish residents of River Nile as more likely to agree, and residents in both Khartoum and Kassala as more likely to disagree with the statement. The result indicates a good penetration of the health message that it is safe to vaccinate children who have a fever.

It is interesting to note that younger people are more likely to agree with the statement, reinforcing the premise that more education about vaccination could be done in schools, or if already being done, could be more effectively carried out. The following tables support this premise

Table 37 Vaccinating a Child with Fever by States (Question 510)

	Don't Know	Agree	Disagree	Total	
Khartoum	15	56	869	940	
River Nile		38	264	302	
Gezira	14	52	613	679	
S Kordofan	22	27	253	302	
S Darfur	2	46	511	559	
Upper Nile	33	21	299	353	
Kassala	3	14	363	380	
Total	89	254	3172	3515	
	Don't Know	Agree	Disagree	Total	
Khartoum	1,6%	6,0%	92,4%	100,0%	
River Nile		12,6%	87,4%	100,0%	
Gezira	2,1%	7,7%	90,3%	100,0%	
S Kordofan	7,3%	8,9%	83,8%	100,0%	
S Darfur	,4%	8,2%	91,4%	100,0%	
Upper Nile	9,3%	5,9%	84,7%	100,0%	
Kassala	,8%	3,7%	95,5%	100,0%	
Total	2,5%	7,2%	90,2%	100,0%	

Table 38 Vaccinating a Child with Fever by Age (Question 510)

	Don't Know	Agree	Disagree	Total	
12-15 years	37	30	641	708	
16 years+	52	224	2531	2807	
Total	89	254	3172	3515	
	Don't Know	Agree	Disagree	Total	
12-15 years	5,2%	4,2%	90,5%	100,0%	
16 years+	1,9%	8,0%	90,2%	100,0%	
Total	2,5%	7,2%	90,2%	100,0%	

4.4. Decision about Health of the Child

Respondents were asked to indicate who makes decisions about the care of the child. They were asked "Who makes decisions in your household about health matters concerning the children?"

Interestingly, 33 percent of males believe that the mother makes the decision and conversely 24 percent of the women feel that it is the father that decides. Very few (0.7%) feel that the Grandmother makes the decision. This does not mean that Grandmothers do not influence decision making – it just means that they do not make the decisions. There may be some validity in conducting secondary research with groups of parents to determine the influential sources of information for them, to assess roles further.

Determinants such as state, age and education level were not statistically significant in terms of decision making about the health of the child.

Table 39 Decisions about health matters by Gender (Question 313)

	Mother	Father	Both	Grandmother	Other	Total
	1	2	3	4	9	Total
Male	588	537	542	9	84	1760
Female	755	420	489	15	73	1752
Total	1343	957	1031	24	157	3512
	Mother	Father	Both	Grandmother	Other	Total
	1	2	3	4	9	Total
Male	33,4%	30,5%	30,8%	,5%	4,8%	100,0%
Female	43,1%	24,0%	27,9%	,9%	4,2%	100,0%
Total	38,2%	27,2%	29,4%	,7%	4,5%	100,0%

4.5. Where to Vaccinate a Child

The respondents were asked a question regarding what they need to do to vaccinate a child. The purpose of the question was to examine the correlation between using a house to house strategy for Polio (for so many years) and the routine EPI (which requires that children be brought to a clinic). As is well known, there is usually a gap (significant in some countries) between the number of children immunized during NIDS and the number of children completely vaccinated through the regular health system.

This question was asked and is included here, since there is a finality (due to the resources that are required) to NIDS, and people will have to once again bring the child to a fixed center or outpost to be vaccinated.

The results show that there is a fair amount of confusion among the population as to exactly what to do. Only 34 percent of the population would take the child to a clinic,

indicating a relatively low understanding for routine EPI. Close to 60 percent of the population would do something else.(indicated by "other"). Unfortunately this data was not coded in the data entry process, but it would certainly be worthwhile to try and identify these alternatives. People are more likely to go to a clinic in Kassala state whereas in River Nile and Gezira they are likely to do something else. Could it be that they would visit a private physician? In Upper Nile more than 16 percent of the population would wait for NIDS indicating either the inexistence of EPI structure or the establishment of a campaign mentality based on so many rounds of immunization.

This data suggests that the Polio team should use every opportunity available to communicate the message about where to vaccinate a child, during and after the NIDS so that people will at least know what to do.

Table 40 Actions to immunize a child by states (Question 506)

	Don't Know	Clinic	Wait for NIDS	Others	Total
Khartoum	2	325	37	575	939
River Nile	2	81	9	212	304
Gezira	2	208	32	435	677
S Kordofan	2	105	39	156	302
S Darfur	7	178	16	358	559
Upper Nile	11	136	59	147	353
Kassala	2	165	12	199	378
Total	28	1198	204	2082	3512
	Don't Know	Clinic	Wait for NIDS	Others	Total
	0	1	2		Total
Khartoum	,2%	34,6%	3,9%	61,2%	100,0%
River Nile	,7%	26,6%	3,0%	69,7%	100,0%
Gezira	,3%	30,7%	4,7%	64,3%	100,0%
S Kordofan	,7%	34,8%	12,9%	51,7%	100,0%
S Darfur	1,3%	31,8%	2,9%	64,0%	100,0%
Upper Nile	3,1%	38,5%	16,7%	41,6%	100,0%
Kassala	,5%	43,7%	3,2%	52,6%	100,0%
Total	,8%	34,1%	5,8%	59,3%	100,0%

Table 41 Actions to immunize a child by Age (Question 506)

	Don't Know	Clinic	Wait for NIDS	Others	Total
	0	1	2		Total
12-15 years	1	21	7	679	708
16 years+	27	1177	197	1403	2804
Total	28	1198	204	2082	3512
	Don't Know	Clinic	Wait for NIDS	Others	Total
	0	1	2		Total
12-15 years	,1%	3,0%	1,0%	95,9%	100,0%
16 years+	1,0%	42,0%	7,0%	50,0%	100,0%
Total	,8%	34,1%	5,8%	59,3%	100,0%

Table 42 Actions to immunize a child by Level of Education (Question 506)

	Don't Know	Clinic	Wait for NIDS	Others	Total
	0	1	2		Total
0	11	263	95	335	704
Less than 6 years	7	272	43	240	562
6 to 12 years	7	523	53	456	1039
More than 12 years		86	5	90	181
Currently Enrolled	3	54	8	961	1026
Total	28	1198	204	2082	3512
	Don't Know	Clinic	Wait for NIDS	Others	Total
	0	1	2		Total
0	1,6%	37,4%	13,5%	47,6%	100,0%
Less than 6 years	1,2%	48,4%	7,7%	42,7%	100,0%
6 to 12 years	,7%	50,3%	5,1%	43,9%	100,0%
More than 12 years		47,5%	2,8%	49,7%	100,0%
Currently Enrolled	,3%	5,3%	,8%	93,7%	100,0%
Total	,8%	34,1%	5,8%	59,3%	100,0%

5. National Immunization Days

5.1. Knowledge of NIDS

Knowledge of NIDS as would be expected is fairly universal. There is however disparity in the data based on where you live. You are more likely to have heard of NIDS if you live in River Nile, Gezira, and Kassala. More than 13 percent of the people in Upper Nile have not heard of the NIDS. Overall 4.5% of the people in Sudan have not heard about NIDS. This is a particularly worrying figure, given the number of rounds of NIDS and the fact that house to house strategies have been used.

In terms of age, children between the age of 12 and 15 are less likely to have heard about NIDS than their elders or parents. This may be an indication that most of the social mobilization was targeted at care takers.

As we have seen in data from other questions, those that have no schooling (and therefore are among the more vulnerable parts of the population) are likely to have less knowledge than those that have attended school. There is evidence from other countries in the region that suggests that a mass media message can get across more effectively to people that have at least a few years of schooling. Those with no schooling have a tendency to reject or ignore a message and that may be the case here.

Table 43 Heard of NIDS (Question 602) by States

	Yes	No	Total	
Khartoum	909	32	941	
River Nile	299	4	303	
Gezira	664	16	680	
S Kordofan	281	23	304	
S Darfur	529	30	559	
Upper Nile	305	48	353	
Kassala	375	5	380	
Total	3362	158	3520	
	Yes	No	Total	
Khartoum	96,6%	3,4%	100,0%	
River Nile	98,7%	1,3%	100,0%	
Gezira	97,6%	2,4%	100,0%	
S Kordofan	92,4%	7,6%	100,0%	
S Darfur	94,6%	5,4%	100,0%	
Upper Nile	86,4%	13,6%	100,0%	
Kassala	98,7%	1,3%	100,0%	
Total	95,5%	4,5%	100,0%	

Table 44 Heard of NIDS (Question 602) by Age

	Yes	No	Total	
12-15 years	647	61	708	
16 years+	2715	97	2812	
Total	3362	158	3520	
	Yes	No	Total	
12-15 years	91,4%	8,6%	100,0%	
16 years+	96,6%	3,4%	100,0%	
Total	95,5%	4,5%	100,0%	

Table 45 Heard of NIDS (Question 602) by Education level

	Yes	No	Total	
0	631	75	706	
Less than 6 years	539	24	563	
6 to 12 years	1031	12	1043	
More than 12 years	182	1	183	
Currently Enrolled	979	46	1025	
Total	3362	158	3520	
	Yes	No	Total	
0	89,4%	10,6%	100,0%	
Less than 6 years	95,7%	4,3%	100,0%	
6 to 12 years	98,8%	1,2%	100,0%	
More than 12 years	99,5%	,5%	100,0%	
Currently Enrolled	95,5%	4,5%	100,0%	
Total	95,5%	4,5%	100,0%	

5.2. Visit by a health team performing vaccinations

NIDS uses a house to house strategy, and therefore it is important to know whether teams that perform vaccinations have visited households in Sudan.

The assumption would be that every household had been visited since NIDS have been going on for the past few years. However one in ten households reports not having been visited by a health team. In terms of regions, more than half the households that

were not visited are in South Darfur and Upper Nile. (Table 46) In a campaign that is designed to be universal, is it possible to miss nearly a quarter of the houses in South Darfur for example? The way in which the question was posed *"Has your home ever been visited by health teams carrying out vaccinations"*.

There is a possibility of some confusion – especially if non health teams were used for the vaccination. The data suggests that special attention should be focused on areas such as River Nile, S. Darfur and Upper Nile

Table 46 Visit by Vaccination Teams by States (Question 311)

	Visited	Not Visited	Total	
Khartoum	900	39	939	
River Nile	235	69	304	
Gezira	635	43	678	
S Kordofan	295	7	302	
S Darfur	418	141	559	
Upper Nile	284	69	353	
Kassala	375	4	379	
Total	3142	372	3514	
	Visited	Not Visited	Total	
Khartoum	95,8%	4,2%	100,0%	
River Nile	77,3%	22,7%	100,0%	
Gezira	93,7%	6,3%	100,0%	
S Kordofan	97,7%	2,3%	100,0%	
S Darfur	74,8%	25,2%	100,0%	
Upper Nile	80,5%	19,5%	100,0%	
Kassala	98,9%	1,1%	100,0%	
Total	89,4%	10,6%	100,0%	

5.3. The impact of NIDS on preventive knowledge

As there is much debate as to whether NIDS contribute to strengthening routine EPI, we looked at what the impact of NIDS has been in Sudan by crossing knowledge about NIDS with other questions relating to routine EPI. The results are presented in Tables 47-50, and the results are mixed.

When asked what they would do to vaccinate a child, it is interesting to note that those who have heard about NIDS are more likely to know that you should take them to a clinic, where as those who have not heard about NIDS did not specify an answer. There is however a high number of respondents who have heard about NIDS who also did not specify an answer, leading us to conclude that NIDS have only been partially successful in reinforcing messages that children are to be vaccinated in health clinics.

In terms of knowing who is most susceptible to getting the disease of polio, those who have heard about NIDS are more likely to know that it is under fives. Those who have not heard of NIDS are more likely to think that adults are more at risk or just do not

know. This should be mitigated by the fact that close to a third of the population is unsure about the right age group.

If you have been visited by a health team, is your knowledge about immunization better than if you had not received a visit? The table below indicates that you are more likely to know that you need to go to a health centre for immunization if you received a visit than if you did not. At the other extreme you would be more likely to wait for NIDS or give another response if you had never been visited by a team. This may indicate that in some cases the vaccination teams are conveying messages about routine EPI.

Do people that have heard about NIDS know more about Polio? The data in Table 50 strongly suggests that those who have been exposed to NIDS also know that Polio can be prevented. At the other extreme, those who do not know about NIDS are also unsure about Polio. This is another indication that NIDS have had partial success as information vehicles as well as for the vaccination of children. The fact that they may be missing the more vulnerable groups in the south is however causing some concern.

Table 47 Impact of NIDS on knowledge of what to do to vaccinate a child

	Clinic	Don't Know	Wait for NIDS	Other	Total
No	28	2	13	114	157
Yes	1169	26	191	1967	3353
Total	1197	28	204	2081	3510

Table 48 Impact of NIDS on age at which one is vulnerable to Polio

	Don't Know	Adults	Other	Anyone	Children above 5	Children Under 5	Total
Yes	237	51	13	435	235	2382	3353
No	64	7	1	20	4	61	157
Total	301	58	14	455	239	2443	3510

Table 49 Impact of Visit of a Health Team on what to do to vaccinate a child

	Health Centre	Don't Know	Wait for NIDS	Other	Total
Never visited by a health team	58	5	32	277	372
Visited by a health team	1140	23	172	1805	3140
Total	1198	28	204	2082	3512

Table 50 Impact of NIDS on whether Polio can be prevented

	Yes	Don't Know	No	Total	
Did not hear about NIDS	52	43	62	157	
Heard about NIDS	2650	249	454	3353	
Total	2702	292	516	3510	

5.4. Sources of Information for NIDS

The Social Mobilization for Polio in Sudan relied on multiple channels, and households were asked to indicate which of a number of sources they considered the most

important. The data in Table 51 shows the various media that were used and indicates to what extent people did hear about NIDS via the particular medium. NR indicates that there was no date recorded.
Radio was the most important source for people (with 70 percent of the sample stating that they had heard about NIDS on the radio). Television was second with about 40% and about 25% of the respondents indicated another source. The data indicates that the use of posters may be a poor investment, in as much as more people indicated that newspapers were a more important source of information than posters. This may indicate that insufficient quantities of the posters were produced, or that they were unevenly distributed in the country.
While radio remains a good investment, there may be a need to increase the use of television since there is such a high access to this media across the board in Sudan. Discrete strategies may need to be developed for the "media poor" areas of the country such as Upper Nile, since these are the areas where mass media does not penetrate.

In addition to looking at sources individually, we decided to cross the channel with radio and TV access in an effort to see if some channels were reaching those that already had both a radio and a TV set (or one of the two), and to see if some people were being left out completely. This data is presented in tables 52 -54 . We looked at radio (because of its reach); friends (indicating an interpersonal channel and perhaps a social network) and posters (since these are usually not well distributed)

In terms of radio, one in five people stated that radio was not a source (and that they do not have access to either radio or TV). It will be difficult to reach these people through more radio programmes at different times, since the factors that prevent access (economic status etc) are not likely to change. These people need to be reached with alternative media and via social networks. On the other hand, a good number of people with access to radio, say that this was not a source of information for them about NIDS. This indicates that they were probably not listening at the time that the NIDS spots were aired, or that they did not pay attention. In the former case one needs to explore alternate timings to broadcast the spots and in the latter use different types of approaches that can grab listeners attention.

Friends and neighbors – i.e. word of mouth is an important source of information for those that do not have access to mass media. The data in Table 53 shows this clearly. The data indicates that word of mouth is likely to be the source of information for those that have no access to mass media. It would seem to indicate the UNICEF and partners should encourage more communication via social networks through empowering approaches and social mobilization.

As far as posters are concerned, they would appear to be reaching the same people that have good access to the media for the most part. In Table 54 we can see that more than three quarters of those who cited posters (78%) also have access to TV and Radio.

Table 51 Sources of Information about NIDS

Table: Data					
	No answer	Yes	No	NR	Total
85R1. Radio	6	2494	868	158	3526
86R1. Television	6	1507	1855	158	3526
87R1. Newspapers	6	207	3155	158	3526
88R1. Friend or Neighbor	6	442	2920	158	3526
89R1. Posters	6	179	3183	158	3526
90R1. Others	6	914	2448	158	3526
91R1. Miking	6	270	3092	158	3526
Table: % Rows					
	No Answer	Yes	No	NR	Total
85R1. Radio	0.2	70.7	24.6	4.5	100
86R1. Television	0.2	42.7	52.6	4.5	100
87R1. Newspapers	0.2	5.9	89.5	4.5	100
88R1. Friend or Neighbor	0.2	12.5	82.8	4.5	100
89R1. Posters	0.2	5.1	90.3	4.5	100
90R1. Others	0.2	25.9	69.4	4.5	100
91R1. Miking	0.2	7.7	87.7	4.5	100
Total					

Table 52 Radio as a source compared with Radio TV access

	R:Y TV:Y	R:Y TV:N	R:N TV:Y	R:N TV:N	Total
Source Radio Yes	1784	477	130	102	2493
Source Radio No	461	92	129	186	868
No response	55	21	19	63	158
Total	2300	590	278	351	3519
	R:Y TV:Y	R:Y TV:N	R:N TV:Y	R:N TV:N	Total
Source Radio Yes	71,6%	19,1%	5,2%	4,1%	100,0%
Source Radio No	53,1%	10,6%	14,9%	21,4%	100,0%
No response	34,8%	13,3%	12,0%	39,9%	100,0%
Total	65,4%	16,8%	7,9%	10,0%	100,0%

Table 53 Friends as source compared with Radio TV access

	R:Y TV:Y	R:Y TV:N	R:N TV:Y	R:N TV:N	Total
Friends Source Yes	180	96	27	139	442
Friends Source No	2065	473	232	149	2919
No response	55	21	19	63	158
Total	2300	590	278	351	3519
	R:Y TV:Y	R:Y TV:N	R:N TV:Y	R:N TV:N	Total
Friends Source Yes	40,7%	21,7%	6,1%	31,4%	100,0%
Friends Source No	70,7%	16,2%	7,9%	5,1%	100,0%
No response	34,8%	13,3%	12,0%	39,9%	100,0%
Total	65,4%	16,8%	7,9%	10,0%	100,0%

Table 54 Posters as source compared with radio TV access

	R:Y TV:Y	R:Y TV:N	R:N TV:Y	R:N TV:N	Total
Posters Source Yes	141	13	14	11	179
Posters Source No	2104	556	245	277	3182
No response	55	21	19	63	158
Total	2300	590	278	351	3519
	R:Y TV:Y	R:Y TV:N	R:N TV:Y	R:N TV:N	Total
Posters Source Yes	78,8%	7,3%	7,8%	6,1%	100,0%
Posters Source No	66,1%	17,5%	7,7%	8,7%	100,0%
No response	34,8%	13,3%	12,0%	39,9%	100,0%
Total	65,4%	16,8%	7,9%	10,0%	100,0%

6. Reaching the Most Vulnerable

In crossing the data using **fifteen different variables** (including whether a child has or has not been vaccinated against polio) it is possible to distinguish ten different groups that share special characteristics. Three of these groups (H-J) are made up of children. Some of these groups are very small relative to the overall sample, numbering just 58 individuals, but by distinguishing them, UNICEF and the GOVERNMENT OF SUDAN can develop communication strategies, messages and materials that are directly targeted to them. The data is shown in Tables 56 through 70 in Section 7.1 of this report.

The most significant finding from this analysis is that there are two groups that are currently outside the reach of both the health system and even the blanket coverage that was to be provided through NIDS. The first two groups that are distinguished might be called the "most disadvantaged or hardest to reach". (Types A and B)

These groups that are more likely **not to have vaccinated** their child against polio, share the following characteristics:

1. They live in Upper Nile, and are predominantly from rural areas.
2. They are more likely to be women.
3. They tend to have no schooling
4. They have access to neither radio nor TV
5. They do not believe that Polio can be prevented
6. In the case of the A group, they have not heard about NIDS.
7. They are generally unsure about preventive health, not knowing at what age a person is vulnerable to Polio.
8. In the case of group B, they would seek treatment from a traditional healer ; in the case of group A they would seek other unspecified remedies (but would never contact health personnel)

These groups, while very small in number, remain out of the reach of the government programme. They cannot be reached via the mass media, and one needs to identify social networks that can help to reach these groups, in order to ensure that they participate in the national immunization programme.

We have highlighted this group, since in order to eradicate Polio this group needs to be reached. The other groups are listed in the following table, and the details can be found in the data tables that follow.

Other groups are summarized in table 55.

Table 55 Audience Segments for Polio Eradication

Type	Main Characteristics
A	Disadvantaged living in rural areas predominantly and mainly from Upper Nile. Most are women.
B	Disadvantaged living in rural areas predominantly and mainly from Upper Nile. Most are women some slight difference with group A.
C	Mainly Adults, Rural, Majority Female, No Schooling, More access to Radio than TV, children vaccinated
D	Mainly Adults, Rural, Majority Female, some have gone to school, access to both Radio and TV
E	Mainly Adults, Urban and Rural, majority female, 6-12 years of schooling, almost all have access to TV and Radio. Children Vaccinated against Polio.
F	Mainly Adults living in Urban and Rural Areas, evenly split between male and female, fewer numbers of years of schooling than E, many have TV and Radio, but a few have neither; Children Vaccinated against Polio.
G	Mainly adults; Urban and Rural; mostly male; relatively better educated; most have radio and TV access; All children have been vaccinated against Polio.
H	Mainly children, Urban, areas, male and female, currently in school, high access to radio and TV;
I	Mainly children, Rural areas, male and female, no schooling or not in school, more likely to have no access to TV, and a good number have no access to mass media at all.
J	Mainly Children, urban and rural areas, more males than females, currently in school; good access to mass media.

These groups can form the basis for a segmented and targeted approach to social mobilization for Polio and other health issues in the future.

6.1. Knowledge Factors

Almost all groups have a high level of knowledge about Polio, with the exception of A, B and I. These groups have in common low levels of education as well as significant numbers that have no access to media. This would argue for greater efforts to reach these groups via traditional social networks (religious where appropriate).

In terms of the age when a child is most vulnerable to getting Polio, respondents in groups E,G, and H are more likely to respond "children under 5" while respondents in groups A,B, and I are more likely to respond "Don't know". Again education and media access appear as important determinants. In the case of the E,G and H groups, levels of education and media access are higher than for those in the other three groups (e.g. A,B and I).

Respondents were asked if Polio could be prevented. The question called for a yes/no response. Respondents in groups A, B, and C did not respond to the question. Respondents in groups D, E, G and H were more likely to respond "yes". Education and Media Access are strong determinants.

6.2. Attitudes and Behaviors

In terms of attitudes regarding immunization, people in groups A, B and I are more likely not to know whether a child with a fever should be vaccinated anyway. The E, G and H groups are more likely to respond that even when the child has a fever he or she can be immunized.

In terms of health seeking behavior, as might be expected those in group B are more likely to seek a traditional healer when a child is sick. As for those in group A, it is not sure what they would do (most responded "other" without this being specified), but they would neither go to a traditional healer or a health clinic. These people are clearly outside both the formal and informal health system. The E group is more likely to use the formal health system, possibly because it is more readily available (access) or that they are convinced.

As to who makes decisions about health in the family, the father is more likely to do so in group A, while both parents are more likely to be involved in group B. In groups E, G, and H the mother is more influential than the father.

What these groups tell us, is that there are a few groups in Sudan that are outside of the reach of the health system, even when the health system is "delivered" house to house as is the case during the NIDS. In addition, it suggests that Mass Media is not able to reach these groups, nor are they reachable through schools.

Further analysis would be useful for other groups, to see which messages are most appropriate for them. Clearly they have been won over to the Polio Eradication effort, but what is their attitude towards regular immunization and other health related issues.

7. Annexes

7.1. Reaching the Vulnerable Data Tables

Table 56 Audience Segments (States)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Khartoum	1	4	36	86	242	78	240	204	18	34	943
River Nile			11	16	61	24	39	111	3	39	304
Gezira	1	1	7	50	191	33	205	176	9	7	680
S Kordofan	12	11	41	53	41	28	15	31	43	29	304
S Darfur	5	10	47	57	80	76	66	87	31	101	560
Upper Nile	39	73	41	61	27	17	3	16	53	24	354
Kassala		9	14	53	91	36	84	81	5	7	380
Total	58	108	197	376	733	292	652	706	162	241	3525
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Khartoum	,1%	,4%	3,8%	9,1%	25,7 %	8,3%	25,5 %	21,6 %	1,9%	3,6%	100,0 %
River Nile			3,6%	5,3%	20,1 %	7,9%	12,8 %	36,5 %	1,0%	12,8 %	100,0 %
Gezira	,1%	,1%	1,0%	7,4%	28,1 %	4,9%	30,1 %	25,9 %	1,3%	1,0%	100,0 %
S Kordofan	3,9%	3,6%	13,5 %	17,4 %	13,5 %	9,2%	4,9%	10,2 %	14,1 %	9,5%	100,0 %
S Darfur	,9%	1,8%	8,4%	10,2 %	14,3 %	13,6 %	11,8 %	15,5 %	5,5%	18,0 %	100,0 %
Upper Nile	11,0 %	20,6 %	11,6 %	17,2 %	7,6%	4,8%	,8%	4,5%	15,0 %	6,8%	100,0 %
Kassala		2,4%	3,7%	13,9 %	23,9 %	9,5%	22,1 %	21,3 %	1,3%	1,8%	100,0 %
Total	1,6%	3,1%	5,6%	10,7 %	20,8 %	8,3%	18,5 %	20,0 %	4,6%	6,8%	100,0 %

Table 57 Audience Segments (Urban vs. Rural)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
urban	5	6	37	100	351	93	295	351	33	77	1348
rural	53	102	160	276	382	199	357	355	129	164	2177
Total	58	108	197	376	733	292	652	706	162	241	3525
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
urban	,4%	,4%	2,7%	7,4%	26,0 %	6,9%	21,9 %	26,0 %	2,4%	5,7%	100,0 %
rural	2,4%	4,7%	7,3%	12,7 %	17,5 %	9,1%	16,4 %	16,3 %	5,9%	7,5%	100,0 %
Total	1,6%	3,1%	5,6%	10,7 %	20,8 %	8,3%	18,5 %	20,0 %	4,6%	6,8%	100,0 %

Table 58 Audience Segments (Gender)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Male	20	46	83	167	336	145	386	369	75	136	1763
Female	38	62	114	210	397	147	266	337	87	105	1763
Total	58	108	197	377	733	292	652	706	162	241	3526
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Male	1,1%	2,6%	4,7%	9,5%	19,1 %	8,2%	21,9 %	20,9 %	4,3%	7,7%	100,0 %
Female	2,2%	3,5%	6,5%	11,9 %	22,5 %	8,3%	15,1 %	19,1 %	4,9%	6,0%	100,0 %
Total	1,6%	3,1%	5,6%	10,7 %	20,8 %	8,3%	18,5 %	20,0 %	4,6%	6,8%	100,0 %

Table 59 Audience Segments (Age)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
12-15 years	39	3	1	4	1	20	16	378	71	175	708
16 years +	19	105	196	372	732	272	636	328	91	66	2817
Total	58	108	197	376	733	292	652	706	162	241	3525
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
12-15 years	5,5%	,4%	,1%	,6%	,1%	2,8%	2,3%	53,4 %	10,0 %	24,7 %	100,0 %
16 years +	,7%	3,7%	7,0%	13,2 %	26,0 %	9,7%	22,6 %	11,6 %	3,2%	2,3%	100,0 %
Total	1,6%	3,1%	5,6%	10,7 %	20,8 %	8,3%	18,5 %	20,0 %	4,6%	6,8%	100,0 %

Table 60 Audience Segments (Education Level)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
0	40	84	105	147	34	129	74	4	85	4	706
Less than 6 years	5	14	53	104	153	70	112	14	27	12	564
6-12 years		9	31	103	447	61	349	38	5	2	1045
12 years +			5	12	76	11	79	1			184
Currently in School	13	1	3	10	23	21	38	649	45	223	1026
Total	58	108	197	376	733	292	652	706	162	241	3525
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
0	5,7%	11,9 %	14,9 %	20,8 %	4,8%	18,3 %	10,5 %	,6%	12,0 %	,6%	100,0 %
Less than 6 years	,9%	2,5%	9,4%	18,4 %	27,1 %	12,4 %	19,9 %	2,5%	4,8%	2,1%	100,0 %
6-12 years		,9%	3,0%	9,9%	42,8 %	5,8%	33,4 %	3,6%	,5%	,2%	100,0 %
12 years +			2,7%	6,5%	41,3 %	6,0%	42,9 %	,5%			100,0 %
Currently in School	1,3%	,1%	,3%	1,0%	2,2%	2,0%	3,7%	63,3 %	4,4%	21,7 %	100,0 %
Total	1,6%	3,1%	5,6%	10,7 %	20,8 %	8,3%	18,5 %	20,0 %	4,6%	6,8%	100,0 %

Table 61 Audience Segments (Radio & TV Access)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Radio Yes TV Yes	2	4	55	169	639	139	528	577	39	150	2302
Radio Yes TV No	7	37	85	143	37	98	69	34	44	38	592
Radio No TV Yes	6		12	13	54	17	48	88	11	29	278
Radio No TV No	43	67	45	51	3	38	7	6	68	24	352
Total	58	108	197	376	733	292	652	705	162	241	3524
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Radio Yes TV Yes	,1%	,2%	2,4%	7,3%	27,8 %	6,0%	22,9 %	25,1 %	1,7%	6,5%	100,0 %
Radio Yes TV No	1,2%	6,3%	14,4 %	24,2 %	6,3%	16,6 %	11,7 %	5,7%	7,4%	6,4%	100,0 %
Radio No TV Yes	2,2%		4,3%	4,7%	19,4 %	6,1%	17,3 %	31,7 %	4,0%	10,4 %	100,0 %
Radio No TV No	12,2 %	19,0 %	12,8 %	14,5 %	,9%	10,8 %	2,0%	1,7%	19,3 %	6,8%	100,0 %
Total	1,6%	3,1%	5,6%	10,7 %	20,8 %	8,3%	18,5 %	20,0 %	4,6%	6,8%	100,0 %

Table 62 Audience Segments (Child vaccinated against Polio)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes	1	83	183	362	720	17	21				1387
No	5	22	8	10	4						49
Total	6	105	191	372	724	17	21				1436
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes	,1%	6,0%	13,2 %	26,1 %	51,9 %	1,2%	1,5%				100,0 %
No	10,2 %	44,9 %	16,3 %	20,4 %	8,2%						100,0 %
Total	,4%	7,3%	13,3 %	25,9 %	50,4 %	1,2%	1,5%				100,0 %

Table 63 Audience Segments (Health Seeking Behavior)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Health Personnel at Clinic		31	71	167	411	11	11				702
Traditional Healer	1	68	107	186	307	5	11				685
Any other Family Member		1	3	1							5
Talk to a friend	1										1
Other	4	3	2	3							12
Other	1	5	9	14	13						42
Total	7	108	192	371	731	16	22				1447
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Health Personnel at Clinic		4,4%	10,1 %	23,8 %	58,5 %	1,6%	1,6%				100,0 %
Traditional Healer	,1%	9,9%	15,6 %	27,2 %	44,8 %	,7%	1,6%				100,0 %
Any other Family Member		20,0 %	60,0 %	20,0 %							100,0 %
Talk to a friend	100,0 %										100,0 %
Other	33,3 %	25,0 %	16,7 %	25,0 %							100,0 %
Other	2,4%	11,9 %	21,4 %	33,3 %	31,0 %						100,0 %
Total	,5%	7,5%	13,3 %	25,6 %	50,5 %	1,1%	1,5%				100,0 %

Table 64 Audience Segments (Decision Making about Health)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Mother	7	42	72	132	300	104	246	284	52	104	1343
Father	29	21	60	127	174	83	147	182	62	72	957
Both parents	22	44	61	102	236	86	191	187	41	61	1031
Grandmother		1		1	2	3	5	6	4	2	24
Other			1	10	18	15	61	47	3	2	157
Total	58	108	194	372	730	291	650	706	162	241	3512
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Mother	,5%	3,1%	5,4%	9,8%	22,3 %	7,7%	18,3 %	21,1 %	3,9%	7,7%	100,0 %
Father	3,0%	2,2%	6,3%	13,3 %	18,2 %	8,7%	15,4 %	19,0 %	6,5%	7,5%	100,0 %
Both parents	2,1%	4,3%	5,9%	9,9%	22,9 %	8,3%	18,5 %	18,1 %	4,0%	5,9%	100,0 %
Grandmother		4,2%		4,2%	8,3%	12,5 %	20,8 %	25,0 %	16,7 %	8,3%	100,0 %
Other			,6%	6,4%	11,5 %	9,6%	38,9 %	29,9 %	1,9%	1,3%	100,0 %
Total	1,7%	3,1%	5,5%	10,6 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,9%	100,0 %

Table 65 Audience Segments (Heard about Polio)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes	4	62	177	361	730	278	651	702	134	234	3333
No	54	46	17	11		13		4	28	7	180
Total	58	108	194	372	730	291	651	706	162	241	3513
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes	,1%	1,9%	5,3%	10,8 %	21,9 %	8,3%	19,5 %	21,1 %	4,0%	7,0%	100,0 %
No	30,0 %	25,6 %	9,4%	6,1%		7,2%		2,2%	15,6 %	3,9%	100,0 %
Total	1,7%	3,1%	5,5%	10,6 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,9%	100,0 %

Table 66 Audience Segments (Risk of Polio)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Don't Know	53	49	28	27		22	2	17	66	37	301
Anybody	4	35	43	78	33	65	46	50	35	66	455
Children Under 5	1	15	99	215	658	175	558	562	43	119	2445
Children over 5		6	14	38	34	19	44	64	8	12	239
Adults		3	10	13	1	8	1	6	9	7	58
Other				1	3	2		7	1		14
Total	58	108	194	372	729	291	651	706	162	241	3512
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Don't Know	17,6 %	16,3 %	9,3%	9,0%		7,3%	,7%	5,6%	21,9 %	12,3 %	100,0 %
Anybody	,9%	7,7%	9,5%	17,1 %	7,3%	14,3 %	10,1 %	11,0 %	7,7%	14,5 %	100,0 %
Children Under 5		,6%	4,0%	8,8%	26,9 %	7,2%	22,8 %	23,0 %	1,8%	4,9%	100,0 %
Children over 5		2,5%	5,9%	15,9 %	14,2 %	7,9%	18,4 %	26,8 %	3,3%	5,0%	100,0 %
Adults		5,2%	17,2 %	22,4 %	1,7%	13,8 %	1,7%	10,3 %	15,5 %	12,1 %	100,0 %
Other				7,1%	21,4 %	14,3 %		50,0 %	7,1%		100,0 %
Total	1,7%	3,1%	5,5%	10,6 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,9%	100,0 %

Table 67 Audience Segments (Prevention of Polio)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Don't Know	27	51	56	1		30			84	43	292
Immunization		4	63	355	729	154	651	705	4	37	2702
Cleanliness	31	53	75	16		107		1	74	161	518
Total	58	108	194	372	729	291	651	706	162	241	3512
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Don't Know	9,2%	17,5 %	19,2 %	,3%		10,3 %			28,8 %	14,7 %	100,0 %
Immunization		,1%	2,3%	13,1 %	27,0 %	5,7%	24,1 %	26,1 %	,1%	1,4%	100,0 %
Cleanliness	6,0%	10,2 %	14,5 %	3,1%		20,7 %		,2%	14,3 %	31,1 %	100,0 %
Total	1,7%	3,1%	5,5%	10,6 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,9%	100,0 %

Table 68 Audience Segments (Is Polio Preventable?)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes		3	57	339	706	145	625	676	3	35	2589
No		1	4	8	11	7	10	18			59
Other			2	8	12	2	16	11	1	2	54
Other	58	104	131	17		137		1	158	204	810
Total	58	108	194	372	729	291	651	706	162	241	3512
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes		,1%	2,2%	13,1 %	27,3 %	5,6%	24,1 %	26,1 %	,1%	1,4%	100,0 %
No		1,7%	6,8%	13,6 %	18,6 %	11,9 %	16,9 %	30,5 %			100,0 %
Other			3,7%	14,8 %	22,2 %	3,7%	29,6 %	20,4 %	1,9%	3,7%	100,0 %
Other	7,2%	12,8 %	16,2 %	2,1%		16,9 %		,1%	19,5 %	25,2 %	100,0 %
Total	1,7%	3,1%	5,5%	10,6 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,9%	100,0 %

Table 69 Audience Segments (Vaccinating a Child with a fever)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Don't Know	25	16	6	2		6			23	11	89
Agree	5	15	34	36	48	25	43	30	10	8	254
Disagree	28	77	153	336	683	259	609	676	129	222	3172
Total	58	108	193	374	731	290	652	706	162	241	3515
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Don't Know	28,1 %	18,0 %	6,7%	2,2%		6,7%			25,8 %	12,4 %	100,0 %
Agree	2,0%	5,9%	13,4 %	14,2 %	18,9 %	9,8%	16,9 %	11,8 %	3,9%	3,1%	100,0 %
Disagree	,9%	2,4%	4,8%	10,6 %	21,5 %	8,2%	19,2 %	21,3 %	4,1%	7,0%	100,0 %
Total	1,7%	3,1%	5,5%	10,6 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,9%	100,0 %

Table 70 Audience Segments (Knowledge of NIDS)

	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes	15	97	180	364	732	276	652	697	124	225	3362
No	43	11	15	11		16		9	38	15	158
Total	58	108	195	375	732	292	652	706	162	240	3520
	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I	Type J	Total
Yes	,4%	2,9%	5,4%	10,8 %	21,8 %	8,2%	19,4 %	20,7 %	3,7%	6,7%	100,0 %
No	27,2 %	7,0%	9,5%	7,0%		10,1 %		5,7%	24,1 %	9,5%	100,0 %
Total	1,6%	3,1%	5,5%	10,7 %	20,8 %	8,3%	18,5 %	20,1 %	4,6%	6,8%	100,0 %

7.2. Profile of the Sample

Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1763	50.0	50.0	50.0
	Female	1763	50.0	50.0	100.0
	Total	3526	100.0	100.0	

State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Khartoum	943	26.7	26.8	26.8
	River Nile	304	8.6	8.6	35.4
	Gezera	680	19.3	19.3	54.7
	S.Kordofan	304	8.6	8.6	63.3
	S. Darfur	560	15.9	15.9	79.2
	Upper Nile	354	10.0	10.0	89.2
	Kassala	380	10.8	10.8	100.0
	Total	3525	100.0	100.0	
Missing	System	1	.0		
Total		3526	100.0		

Province

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Khartoum	1456	41.3	46.0	46.0
	Gabel awlea	905	25.7	28.6	74.6
	Baharey	679	19.3	21.5	96.1
	Sharg El Nile	41	1.2	1.3	97.4
	Rural Sharg El Nile	41	1.2	1.3	98.7
	Karrarey	41	1.2	1.3	100.0
	Total	3163	89.7	100.0	
Missing	System	363	10.3		
Total		3526	100.0		

Focus Group Discussion Guide

We are gathered here today to talk about issues that are important to each one of us. Your opinion is very important to us, please note that what ever you say is correct, because it's what you believe. Therefore, there are no wrong answers. Some of you may entertain the same opinions while some of you may not. Those who have different opinions should share them with the others. The success of this gathering is based on rich discussion. So, please feel free to express your opinion, but please wait till the other person has finished talking.

My name is ……I am an independent researcher, can you please each mention your name, age and if you have children, how many do you have and what are their ages? Lets start from the right…

Media Habits (15 minutes)

Do you read newspapers? (If do not read ask why). If so, how often do you read papers? What newspaper do you read, domestic or foreign? What subject do you read most? How/Where do you get your newspaper/s?
Do you listen to the radio? If so, do you listen to domestic or foreign radio stations or both? What stations? What programs? How often?
Do you watch TV? How often? What programs? What station? What hours?
Have you ever read in a newspaper, listened in the radio or watched on TV any health related item? If so, how did you find it? Why do you say that?

General Health Issues (30 Minutes)

In your opinion what does a healthy child look like?
What should a mother do to keep her child healthy? What do you think is most important for a child's good health?
Where did you have your last baby? Why?
Some people prefer to go to places other than a health facility when their child is not feeling well. Do you agree with them? Why? What do you do when your child appears sick?
Have you ever been to a health facility with your baby? When you visit a doctor or health center with your baby what do they tell you? What do they do? What else?
Some people say " It's important to visit a health center on regular basis" what do you think of this? Why do you say that?
How close is the nearest health facility for you? Do you use it? If no, why?
What do you think of these facilities? Why do you say that?
What are you health concerns and fears in your child's early years?
Who do you listen to most on an issue of child's health?
Some people rely on advice from others (neighbors, friends), what do you think of that? Is it a good thing to listen to what other people say? Why?

Someone told me that grandmothers play an important role in giving health advice to the mother, what do you think about that? Why?
Who do you think knows best about child health issues? Why do you think so?
Vaccination (40 minutes)

What is the best way of preventing disease? Why do you say so?
Did you have any of your children immunized? Where? Why? Did you have any worries?
Some people think it's important to have children immunized. Do you agree? Why?
What can happen to a child who is not immunized?
Do you believe that a child should get regular immunization? Why?
Have you ever been advised to vaccinate your child? If so, what was your reaction? Why? Do you think children need vaccination? If yes, why? And if no, why?
Do you know anyone (parents) who has vaccinated his/her children? If so, did you talk to them about their child's vaccination? If yes, what did they say? And if no, why do you think they vaccinated their child?
What are the reasons in your opinion that prevent children in your community from being vaccinated?
What can be done to ensure that children in this community are fully vaccinated?
Did Sudan have a Polio Immunization campaign recently? This year, last year? What month?
How did the vaccination teams interact with the family, the community? Can you describe the process that was used? What did they tell you?
How did you hear about it? What was the main objective of this NID?
We have heard that some families did not allow their children to be vaccinated, why do you think they did that? Is this good or bad?
If a child comes down with cold symptoms, fever, vomiting, diarrhea and sore muscles, what do you do? What do you think is wrong with him? Who is the best person to see him?
If a child shows some weakness in crawling/walking or one of his legs gets weaker what do you think is wrong with him? What do you do in this case? How quickly will you go to health center or visit the doctor? Why?
Did your child receive the polio vaccine? If yes, how was it given?
Where was this vaccine given, at home, in a clinic, or other location (please specify)?
How many times has your child received the polio vaccine? What do you think about this repeated vaccination?

7.3. Sample Design (Agreed upon)

Sample Size

The formula we used to determine sample size is as follows:

N=(Z*Z*pq)/d*d=384, modified to 400

Where:

N = sample size

Z = 1.96, at 95% confidence interval

P = 0.5, expected coverage. (It is at this level where, conservatively, the largest possible sampling error can take place and we adjust the sampling procedures to take care of that).

Q = 1-p

D = is the level of accuracy desired = 5%

Since we need to examine 7 regions, and in order to get a reduced marginal error, by increasing the sample size, we have multiplied the sample size of 400x7 = 2800. This gives a margin of error for a result of 50% of +/-1.8% for the whole sample.

Sample Quota

Questionnaires will be administered to 2,800 adults & 700 Children, male and female, respondents in urban and rural areas of the country as shown in Table 1.

The questionnaire is administered to a sample of 100 children in each of the seven randomly selected states. The sample in each of the seven states will be weighted (according to the percentage of national population residing in each state) as needed, during data analysis.

The sample units will be households and the sampling frame is a detailed map of administrative regions of Sudan. There will be a multi-stage cluster sampling, the states, provinces, localities, neighborhoods and then households. The cluster is further narrowed by randomly selecting a state, province, locality, neighborhood, and finally a household. Adults in a given household are based on gender where within each gender respondents are selected randomly. In the case of children, the selection is done among the age group of 1-5 five years old.

State→ Province→ Locality→ Neighborhood → Household → Adult → Male
↓ ↓
Children Female

Number of Clusters

Since it was agreed that each cluster would have 40 questionnaires (20 7male & 20 female), the total number of clusters is 3500/40=88. Clusters in urban and rural area per state will be allocated in proportion to population: - i.e. if a state has 8 clusters, and rural areas represent 60% of the population then, then we will 5 clusters in rural and 3 in urban areas.

Selected States within Zones

From the list of zones supplied in the request for proposal, and based on the criteria outlined in the RFP, the following states were selected:

Kassala, South Dafur, South Kordofan, Gezeira, Upper Nile, River Nile & Khartoum.

(Please see section 7.2 for the actual sample)

Table 71 Proposed Sample

Zone	*Place*	*Population (000)*	*%*	*Adult Sample size*	*Adult Modified*		*Children Sample size*		*No. of Cluster*	*Q'er/ Cluster*
					Male	*Female*	*Male*	*Female*		
Eastern	*Kassala*	***1525***	*Zone Place*	***280***	***140***	***140***	***50***	***50***	***10***	***38***
Dafur	*S. Dafur*	***2760***	***17***	***476***	***240***	***240***	***50***	***50***	***14***	***40***
Kordofan	*S.Kordofan*	***1111***	***7***	***196***	***100***	***100***	***50***	***50***	***8***	***38***
Northern	*River Nile*	***900***	***6***	***168***	***100***	***100***	***50***	***50***	***8***	***38***
Southern	*Upper Nile*	***1453***	***9***	***252***	***125***	***125***	***50***	***50***	***9***	***39***
Central	*Gezira*	***3374***	***21***	***588***	***290***	***290***	***50***	***50***	***17***	***40***
Khartoum State		***4740***	***30***	***840***	***420***	***420***	***50***	***50***	***23***	***41***
Total		***15863***	***100***	***2800***	***1415***	***1415***	***350***	***350***	***89***	

7.4. List of personnel involved in KAP survey in Sudan

Table 72 List of Personnel involved in the Study

Project Coordinator:	Moncef M. Bouhafa, Director Center for Development Communication
UNICEF Coordinator	Nance Webber, Communication Officer , UNICEF Khartoum
Team Leader	Issa Abyad (first phase) Admassu Tassew (second phase)
National Consultant	Emad Abdeen (first phase) Sawsan Mustafa (second phase)
Interviewers	1-Hanadi Abdullah, research unit 2-Amira Alawad, research unit 3-Andira Hassan, research unit 4- Omima Mohamed Kair.
Field Supervisor	Amina, Research Unit
Advisor	Graham Mytton
Gezira State	Nadia Bushra, Supervisor 1-Muna Mohamed Hassan, nutrtionist. 2-Assma Abdul hameed, statistic department 3-Omima Elhaj Babiker, statistic department
Kassala State	1-Mohamed Elamin Ismail, vaccinator. 2-Aisha Abdulwahab, vaccinator. 3-Wafa Abdullah, vaccinator.
River Nile	Asia Abdullah, Supervisor 1-Mohamed Osman Omer, public officer 2-Salah Mohamed Zain, statistic technician 3-Amal Wagialla, statistic enchain
South Darfur	1-Afaf Musa Mustafa, , public officer 2-Maka Ali Ahmed, public officer 3-Noora Ahmedyi, statistic technician.
South Kordofan	Dr Sadig Bella, Supervisor 1-Mariam Balag, statistic department. 2-Ahmed Elamin, statistic department. 3-Aida Jumma, Statistic department.
Upper Nile	1-Outk Kareal SMOH. 2-Samuel Alexlalio, GOAL 3-Peter Aorojwuk, statistic department
Data Entry	1-Siham Yagoub statisticians 2-Khadiga Adam statisticians 3-Samira Yousif statistician 4-Egbal Muhieldin statisticians