



STATE OF ERITREA

Ministry Of Health

**EVALUATION of MEASLES
FOLLOW-UP and
VITAMIN-A
SUPPLEMENTARY
IMMUNIZATION
ACTIVITIES,**

August 2006



Table of Contents

FORWARD.....	iv
EXECUTIVE SUMMARY.....	vii
ACKNOWLEDGMENTS	ix
Chapter 1 Introduction.....	10
1.1 Background.....	10
1.2 Evaluation Objectives	11
Chapter 2 Survey Methodology	13
2.1 Study Areas	13
2.2 Study Population.....	13
2.3 Sampling.....	13
2.3.1 Stratification.....	13
2.3.2 Sample size.....	14
2.3.3 Sampling frame	14
2.4 Household and Children Selection	14
2.5 Training of Interviewers and Supervisors	14
2.6 Data Collection	15
2.7 Data Entry	15
2.8 Data Analysis	15
2.9 Qualitative Survey	15
Chapter 3 Coverage Survey Results	16
3.1 Demographic Characteristics of Respondents	17
3.2 Demographic Characteristics of Eligible Children	19
3.3 Measles Coverage.....	20
3.3.1 Coverage Survey results.....	20
3.3.2 Measles campaign coverage by age group and sex	20
3.3.3 Place of vaccination	21
3.3.4 Reasons for not being vaccinated	21
3.3.5 Adverse reactions observed during the campaign	22
3.3.6 Vitamin A supplementation during the campaign.....	22

3.3.8	Discussion.....	22
3.4	Children Previously Unvaccinated for Measles	23
3.4.2	Previously vaccinated children.....	25
3.4.3	Discussion.....	25
3.5	Comparison Between Measles SIAs Administrative Coverage with Household Survey Coverage Results	26
3.5.1	Comparison of coverage rates	26
3.5.2	Discussion.....	27
Chapter 4	Qualitative Survey Results.....	28
4.1	Pre-campaign Planning, Preparation, and Logistics	28
4.1.1	Micro-planning	28
4.1.2	Social mobilization.....	29
4.1.4	Training.....	31
4.2	Implementation.....	31
4.2.1	Monitoring and supervision	31
4.2.2	Adverse Events Following Immunization	32
4.2.3	Ratio of vaccinators to number of children to be vaccinated.....	32
4.2.4	Identifying unvaccinated children	32
4.2.5	Injection safety and waste management	32
4.3	Mopping-up Activities after the Catch-up Campaign.....	32
4.4	Impact of Campaign on Routine Immunization Services.....	33
4.5	Improving Outcome of the Campaign	33
4.6	Discussion.....	33
Chapter 5	Conclusions and Recommendations	35
5.1	Conclusions	35
5.2	Recommendations.....	36
Annex 1	Clusters by Study Areas.....	37
Annex 2	List of Coverage Survey Teams	40
Annex 3	Training Guidelines for Interviewers and Supervisors	41

FORWARD

ABBREVIATIONS AND ACRONYMS

AEFI:	Adverse Event Following Immunization
CHL:	Central Health Laboratory
C.I:	Confidence Interval
CSPro:	Census and Survey Processing System
DPC:	Disease Prevention and Control
EDHS:	Eritrean Demographic Health Survey
EPI:	Expanded Programme on Immunization
FCH:	Family and Community Health
MOH:	Ministry of Health
NRS:	Northern Red Sea
PHC:	Primary Health Care
PPS:	Probability Proportion to Size
S.A:	Study Area
SIAs:	Supplemental Immunization Activities
SPSS:	Statistical Package for Social Sciences
SRS:	Southern Red Sea
TBAs:	Traditional Birth Attendants
UNICEF:	United Nations Children's Fund
WHO:	World Health Organization

LIST OF TABLES AND FIGURES

Figure 1.1: Eritrea's Strategy for Achieving Accelerated Measles Control, 2002-2006	11
Figure 3.1 Study areas for post-campaign coverage evaluation survey.....	16
Table 3.1 Characteristics of respondents (N=895).....	17
Table 3.2 Demographic Characteristics of children aged 6 to 59 months.....	19
Table 3.3 Household measles SIAs coverage by study area.	20
Figure 3.2 Measles SIAs vaccination coverage by age group.	20
Table 3.4 Household measles SIAs coverage by place of residence.....	21
Figure 3.3 Reasons for not being vaccinated during the campaign.	21
Figure 3.4 AEFIs reported during the household coverage survey by study area.	22
Table 3.5 Vitamin A supplementation results by study area.	22
Table 3.7 Percentage of previously unvaccinated and vaccinated children by study area.	24
Table 3.8 Reasons for children not being previously vaccinated against measles before the campaign.....	24
Table 3.9 Comparison between measles SIAs administrative data with household survey coverage results.	26
Table 4.1: Zonal Distribution of personnel included in the qualitative survey.....	28
Table 4.2 Community members involved in the campaign as reported by the village administrators (n=84).....	29
Table 3.3: Social mobilization activities conducted at the sub-zones as reported by health workers at vaccination posts (n=60).....	30

EXECUTIVE SUMMARY

The measles supplementary immunization activities (SIAs) post-campaign evaluation coverage survey was conducted in August 2006 to assess the reported administrative measles coverage results, identify reasons for not immunising, and to make recommendations for strategies and interventions that will enhance the achievement and sustainability of EPI planned activities. The target age groups were children aged 6-59 months to assess measles vaccination coverage and vitamin A supplementation coverage.

For the post-campaign evaluation survey, the country was divided into three study areas based on the administrative coverage achieved during the campaign. In each of the three study areas, 30 clusters of 10 household with children 6-59 months were selected. This resulted in 895 households being included in the survey with a total of 1275 children. Data collection was carried out between 08–22, August 2006.

The overall measles vaccination coverage was 98.3% for the household survey, and there was no statistically significant difference in coverage among the three study areas, or between children residing in urban or rural areas. Only 11.2% of children included in the household survey had not been previously vaccinated for measles prior to the measles campaign.

The post-campaign evaluation found a difference in vaccine coverage between the measles SIAs administrative data and the household survey results. The overall percentage difference was 3.1%. The inaccuracy in the estimation of the target population is believed to be the major factors explaining this difference.

The survey showed a very high coverage (97.8%) for vitamin A supplementation. A slight difference was found for vitamin A supplementation coverage estimates between the SIAs administrative data, 95 %, and the household survey, 97.8%. There was no difference seen in vitamin A coverage among the three study areas.

After the successful completion of the 2006 measles SIAs in Eritrea and based on the data from the household vaccination coverage survey, the Ministry of Health's Expanded Programme on Immunization should consider the following recommendations:

- Strengthen routine services for immunizing children at 6 months of age.
- Make reliable estimates of the target population and age-sex structure for the routine EPI programme, with the help of assistance from relevant professionals, taking into account the existing and past population figures and its growth dynamics (fertility, mortality, and migration) in the country.
- Strengthen social mobilization to increase routine immunization services. The wealth of experience gained during the measles campaign should be used to find innovative ways to increase public demand for routine immunization services.
- Strengthen case-based measles surveillance to evaluate the impact of the SIA on measles incidence by reporting and investigating suspect measles cases, and collecting specimens for suspect cases.
- Conduct a follow-up campaign in 2008 for children aged 6-59 months based on surveillance and routine immunization data.

ACKNOWLEDGMENTS

A nationwide measles follow-up plus Vitamin A campaign for children aged 6 months to 5 years had been conducted from 28 June to 02 July 2006. To validate the administrative coverage data and evaluate quality of campaign, post campaign coverage and qualitative evaluation has been conducted by the EPI programme with the support of partners.

The Eritrean Ministry of Health would like to acknowledge the assistance and participation of the following organization and partners during the post campaign evaluation.

WHO Eritrea Country Office: for technical and financial support to undertake the evaluation including recruiting national consultant to assist the Ministry in the post campaign coverage survey.

UNICEF Eritrea Country Office: for its financial support to conduct the post campaign coverage survey.

Orotta School of Medicine and Asmara Nursing School: For providing medical students for data collection and Asmara Nursing School tutors as team supervisors respectively.

Zonal MoH Team, Health Workers and Village/Town Administrators: for their contribution to the success of the campaign, and for their cooperation in providing information and required support for the post campaign evaluation survey teams.

Parents/Caretakers: for bringing their children for vaccination and participating in the household survey.

Chapter 1 Introduction

1.1 Background

Measles remains a leading cause of death among young children, despite the availability of a safe and effective vaccine for the past 40 years. An estimated 454 000 people, the majority of them children, died from measles in 2004 (the last year for which figures are available).

Measles is one of the most contagious diseases known. Almost all non-immune children contract measles if exposed to the virus.

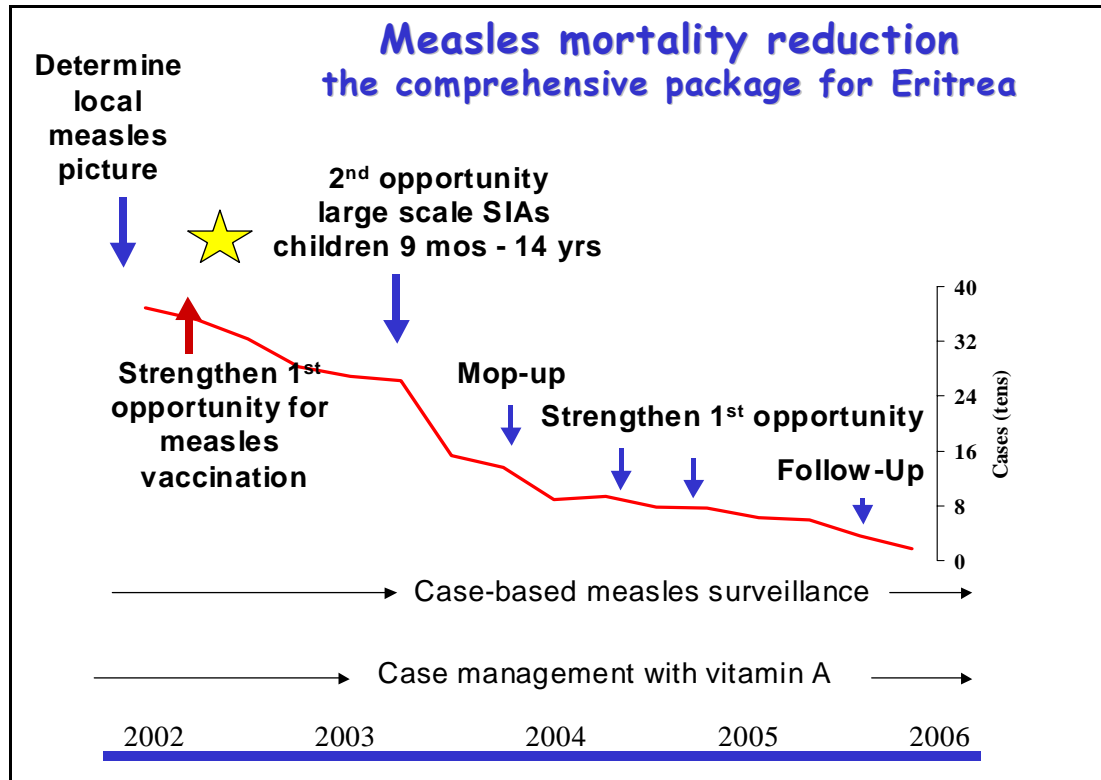
Immunization coverage rates for measles vaccination vary significantly by region. The World Health Organization (WHO) and UNICEF estimate that the global average for routine measles immunization coverage was 76% in 2004. Lower measles vaccination coverage rates are reported from the African, South-East Asia and Eastern Mediterranean regions, those regions with the highest measles disease burden.

In May 2003, the 56th World Health Assembly unanimously adopted a resolution (http://www.who.int/gb/EB_WHA/PDF/WHA56/ea56r20.pdf) to reduce measles deaths by 50% by the end of 2005 compared to 1999 levels. This goal was established a year earlier by the United Nations General Assembly Special Session on Children "World Fit for Children". In May 2005, the 58th World Health Assembly adopted the WHO/UNICEF Global Immunization Vision and Strategy (GIVS) . GIVS calls on countries to reduce global measles deaths by 90% by 2010 compared to 2000 estimates. The United Nations Millennium Declaration also set a child survival target: to reduce the under-five child mortality rate by two-thirds by the year 2015 compared with 1990 levels. Routine measles vaccination coverage is used as an indicator for this target.

As part of its measles elimination goal, Eritrea has developed a five-year strategic plan of action 2002-2006 for accelerated measles control, and has successfully implemented the adopted strategies. A measles supplemental immunization activities (SIAs) targeting children 9 months through 14 years was implemented in 2003 (catch –up campaign), case-based measles surveillance has been effectively implemented and a nation wide follow-up campaign

was conducted from 28 June to 02 July 2006. As a result measles mortality has dropped to almost zero and number of reported cases has markedly been reduced.

Figure 1.1: Eritrea's Strategy for Achieving Accelerated Measles Control, 2002-2006



1.2 Evaluation Objectives

After the implementation of the 2006 Eritrean nationwide Vitamin A plus measles follow-up campaign targeting all children aged 6 -59 months, it was important to assess the reported administrative measles coverage results by conducting a post-campaign evaluation. The objectives of the evaluation are listed below.

1. To establish measles SIA vaccination coverage by:
 - Assessing measles SIA coverage among children aged 6-59 months.
 - Assessing the extent to which the campaign was able to reach previously unimmunized children.
 - Determining parents' satisfaction with the measles SIAs.

- Providing information on reasons why caretakers or parents chose not to participate in the measles SIAs.
2. To assess vitamin A coverage among children aged 9-59 months.
 3. To assess the quality of supervision and documentation of processes conducted during the measles SIAs.

Chapter 2 Survey Methodology

2.1 Study Areas

For the measles post-campaign evaluation and coverage survey, the country was divided into three study areas (SA) based on the coverage achieved during the campaign:

- Study Area 1: Gash-Barka and Debub Zones (to represent high performing zones)
- Study Area 2: Anseba and Southern Red Sea Zones (to represent medium performing zones)
- Study Area 3: Mackel and Northern Red Sea Zones (to represent low performing zones)

2.2 Study Population

The study population for the household survey was children aged 6 months to 59 months in sampled households. Respondents, mothers or caretakers, were asked questions in order to assess the measles vaccination and the vitamin A supplementation coverage for children aged 6 – 59 months who were eligible to be vaccinated during the campaign

2.3 Sampling

The sample design adapted for this study was a two-stage stratified cluster design. At the first stage, villages were used as primary sampling units, and at the second stage, households were used as the secondary sampling units. The methodology for this survey is the traditional EPI cluster survey whereby 30 clusters were selected per study area. To select clusters, probability proportion to size sampling (PPS) was used; size being the number of households in a cluster.

2.3.1 Stratification

The domains of the study were the three study areas and each study area was used as a stratum. The required 30 clusters in each study area were selected proportional to size. However, because Southern Red Sea (SRS) Zone has the lowest population size, accounting for only 4% of Eritrea's population, the PPS method yielded a small number of clusters for this Zone, which did not allow a reliable estimate for this zone. Therefore, in order to have a

fair distribution of sample clusters by Zone and obtain a reliable estimate at an acceptable level of sampling error for SRS Zone, the square root sample allocation was adopted.

2.3.2 Sample size

In each of the three study areas, 30 clusters were selected for a total of 90 clusters (Annex 1). The sampling was carried out on the design of 30 clusters of 10 households each; in the age group 6 months- 59 months. The requirement of this survey was that all eligible children from selected households be included in the sample. In this survey, instead of selecting 10 children from each cluster, 10 households with eligible children were selected and this resulted in higher number of children in the sample, with actual number of 1275 children.

2.3.3 Sampling frame

The sampling frame used for the survey was the list of villages by their number of households and individuals prepared by the Ministry of Local Government in 2000.

2.4 Household and Children Selection

The interviewer randomly selected the first house to visit in a cluster, village, or town by spinning a pen or a bottle and following the direction where it pointed. Numbers (1-10) were assigned to each of the first 10 households found in the direction selected. The numbers were written on pieces of paper and then one piece of paper (household) was randomly selected. There after, to select the next households to be visited interviewers moved clockwise from one household to the next nearest household. After selecting the first household, the second household to be visited was the one that was nearest to the first household. That is the one whose front door was closest to the front door of the first household visited. This procedure continued until ten households with eligible children were found per cluster. All children between 6-59 months available in the selected household were included in the sample.

2.5 Training of Interviewers and Supervisors

Training was conducted in Asmara from 4-5 August, 2006 for thirty two interviewers and six supervisors (Annex 2). Interviewers were students from Orotta School of Medicine and

the supervisors were instructors of the Nursing school with a previous experience in EPI. During the training, the interviewers were provided with theoretical lesson on the generalities of the campaign, methodology, and filling of the questionnaires, which was followed by field experience and pre-testing of the questionnaires (Annex 4). Training guidelines were developed for interviewers and supervisors (Annex 3).

2.6 Data Collection

Data collection was conducted from 08 –22 August 2006. Information was collected using a standardized questionnaire on measles vaccination and vitamin A supplementation. Respondents were mothers or caretakers of eligible children. Supervisors were responsible to review completed survey questionnaires for completeness and accuracy on a daily basis.

2.7 Data Entry

Data were entered twice using the software package CPro (Census and Survey Processing System, US Bureau of Census). Data entry was done in a stand-alone environment in which the three data entry operators were working on separate computers.

2.8 Data Analysis

SPSS version 11 and Epi- info 6.4d was used to analyze the data from the household survey. Both descriptive and analytical analysis was conducted, including the production of cross-tabulations between variables. Statistical significance was determined at the 95 % level of significance.

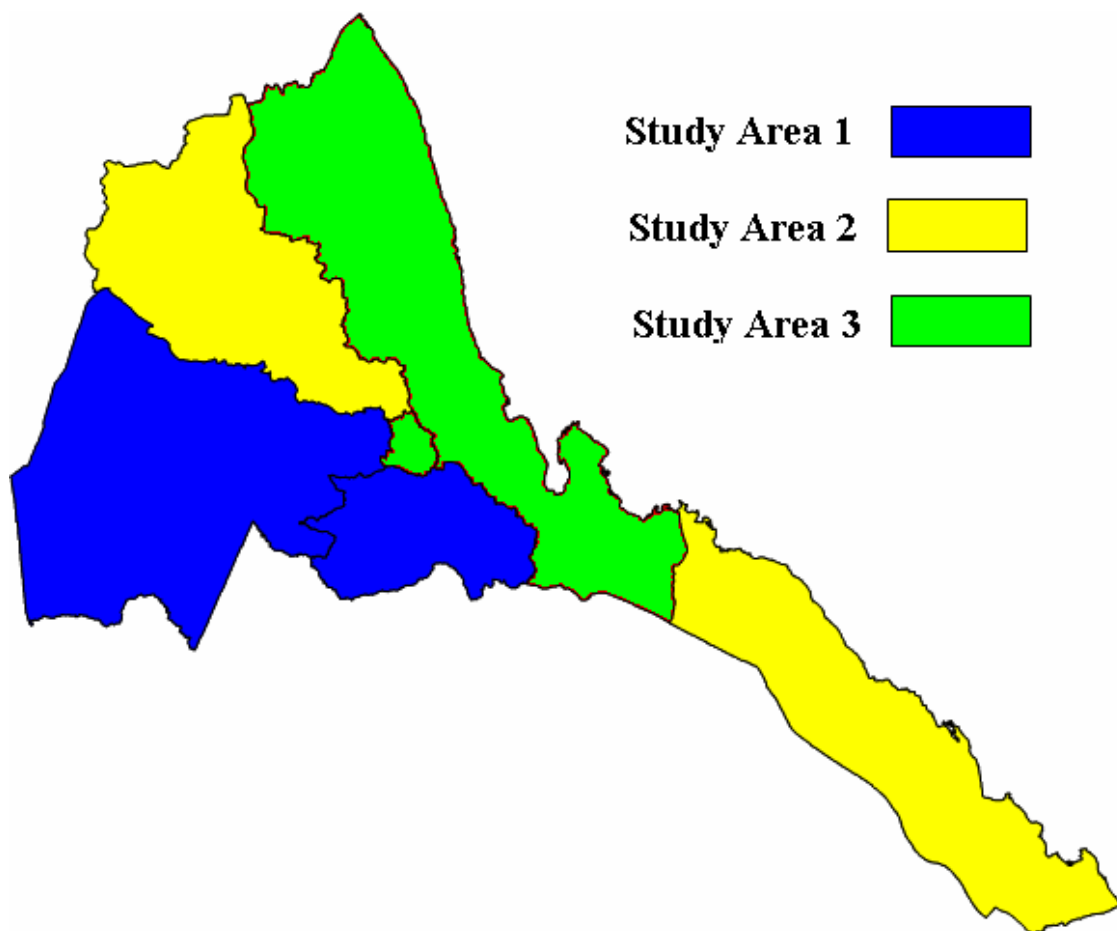
2.9 Qualitative Survey

A qualitative survey was conducted by supervisors using open-ended questionnaires for vaccination post staff, health officials at zonal and sub-zonal levels, and village administrators, respectively (Annex 5). Supervisors used convenience sampling to select health workers, health officials at zonal and sub-zonal levels, and village administrators in the three study areas (See Chapter 4 for details).

Chapter 3 Coverage Survey Results

This chapter presents the results of the post-campaign coverage survey. A total of 895 households were surveyed covering 1275 children aged 6 to 59 months in the three study areas (Figure 3.1). Data presented include the demographic characteristics of the respondents and children, coverage results for measles vaccination and vitamin A supplementation during the campaign, the percentage of zero-dose children reached during the campaign, and the comparison of the survey results to the administrative coverage data.

Figure 3.1 Study areas for post-campaign coverage evaluation survey.



3.1 Demographic Characteristics of Respondents

Table 3.1 shows the distribution of the survey respondents by background characteristics. Almost all of the respondents in the survey were mothers (98.2) and the rest accounted for only 1.8%. The median age of respondents was 29 years (range 17 –78 years). The majority of the respondents were married (94.1%), while 2.7% were divorced. A very small proportion of respondents (2.3%) had never been married. Over half of the respondents were Muslim (52.8%) and another 41.6% were Orthodox Christians.

Table 3.1 Characteristics of respondents (N=895).

Characteristics	Number	(%)
Relationship to the child		
Mother	879	98.2
Father	3	0.3
Sibling	2	0.2
Grand mother	9	1.0
Aunt	2	0.2
Age		
<20	33	3.7
20-29	426	47.6
30-39	347	38.8
40-49	74	8.3
50+	15	1.7
Marital status		
Never married	21	2.3
Married	841	94.0
Separated	3	0.3
Divorced	24	2.7
Widowed	6	0.7
Religion		
Catholic	49	5.5
Orthodox	372	41.6
Protestant	7	0.8
Muslim	467	52.2
Total	895	100.0

Table 3.1 Continued

Characteristics	Number	(%)
Education		
No education	300	32.9
Primary education	321	35.9
Secondary	119	13.3
Post secondary	8	0.9
Adult education	88	9.8
Junior	58	6.5
Not stated	1	0.1
Place of residence		
Urban	279	31.2
Rural	616	68.8
Occupation of the head of the household		
Subsistence farming	259	28.9
Pastoralist	29	3.2
Local merchant	56	6.3
Civil servant	83	9.3
Unemployed	121	13.5
Military	277	30.9
Daily laborer	9	1.0
Other	50	5.7
Not stated	10	1.1
Total	895	100.0

The distribution by level of education shows that 32.9% of the respondents did not have any formal education and another 9.8% had received some adult education. More than one third of the respondents (35.9%) reported completing primary education followed by secondary (13.3%). The differential by place of residence indicates that more than two third of the households reside in rural areas (68.8%).

The majority of the survey respondents (30.9%) were reported to be military/national service followed by those engaged in subsistence farming (28.9%). For one fifth of the households (18.8%), the occupation of the head of the household was civil servant, local merchant or pastoralist, while 13.5% were unemployed/housewife.

Respondents' opinion on adequacy of social mobilization

Respondents were also asked whether they were satisfied with the information they received about the measles campaign or not. The majority of the respondents (94.5%) reported that they were satisfied with the information they received about the measles campaign. Out of 20 respondents who reported not being satisfied with the information received, nine of them indicated that they needed more information about measles vaccination.

3.2 Demographic Characteristics of Eligible Children

Table 3.2 shows the characteristics of the eligible children included in the survey. Male children made up 54.0% of the children in the sample. The distribution by age shows that the majority of the sample children were aged between 1 to 4 years. The smallest proportions of children were those in the age-group of 6 to 12 and 48-59 months i.e. 11.4% and 7.3% respectively. Only 4.5% of the surveyed children were not present at home at the time of the survey. Children were evenly distributed among the study areas and 71.5% of the children resided in rural areas.

Table 3.2 Demographic Characteristics of children aged 6 to 59 months.

Characteristics	Number	(%)
Sex		
Male	689	54.0
Female	586	46.0
Age		
6-11	124	11.4
12-23	323	29.7
24-35	272	25.0
36-47	290	26.6
48-59	80	7.3
Child status at the time of survey		
Present	1217	95.5
Absent	58	4.5
Study Area (SA)		
Study area 1	450	35.3
Study area 2	423	33.2
Study area 3	402	31.5
Place of Residence		
Urban	363	28.5
Rural	912	71.5
Total	1275	100.0

3.3 Measles Coverage

3.3.1 Coverage Survey results

The overall national measles immunization campaign coverage was 98.3% (n=1253) [95% CI:[96.8-99.1] with no statistically significant difference in coverage among the three study areas.

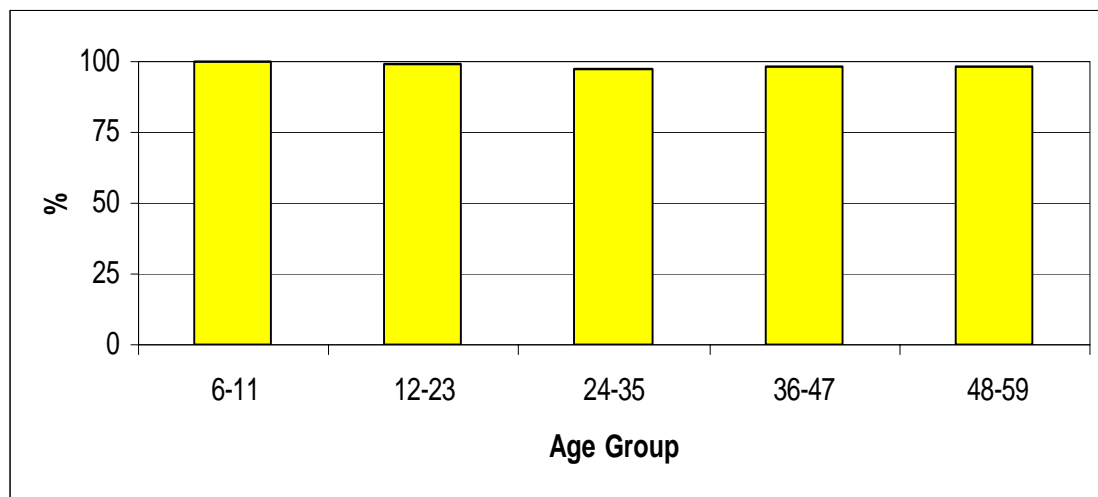
Table 3.3 Household measles SIAs coverage by study area.

Study area	Vaccinated (n)	Vaccinated (%)	Total	95% C.I.
SA1	434	96.4%	450	[92.7-98.3]
SA2	422	99.8%	423	[97.4-100.0]
SA3	397	98.8%	402	[95.7-99.8]
Total	1253	98.3%	1275	[96.8-99.1]

3.3.2 Measles campaign coverage by age group and sex

The survey did not find any difference in measles vaccination coverage by age group (Figure 3.2). There was also gender balance for immunization coverage during the campaign with 98.4% of males and 98.1% of females immunized during the campaign.

Figure 3.2 Measles SIAs vaccination coverage by age group.



3.3.3 Place of vaccination

Overall the majority of the children received measles vaccine at health facilities (46.3%), while 40.4% were vaccinated at outreach posts. Schools accounted for only 13.3% of the vaccination service points during the campaign. No difference was found in measles vaccination coverage between urban and rural geographic areas (Table 3.4).

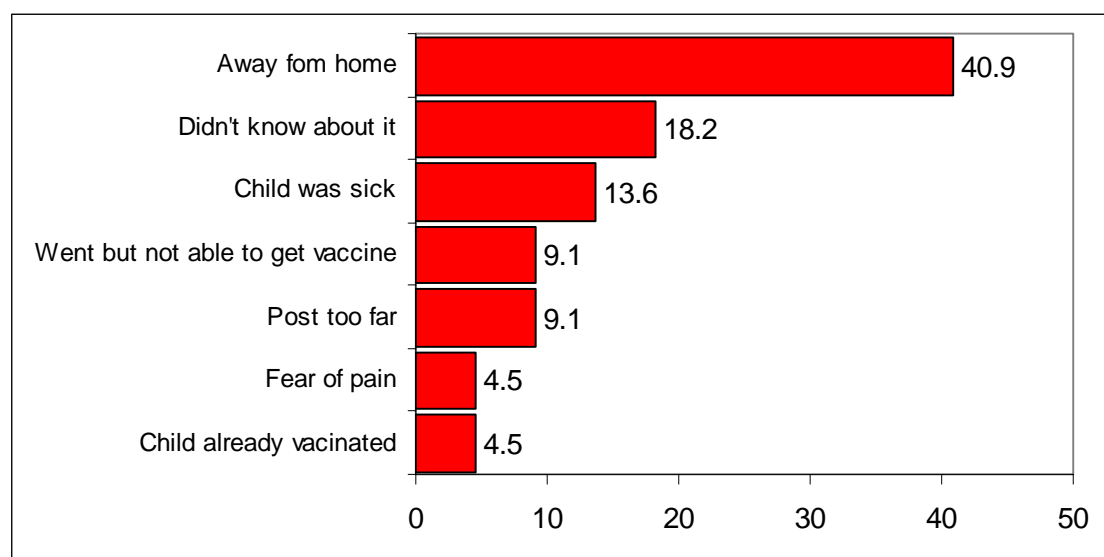
Table 3.4 Household measles SIAs coverage by place of residence.

Place of residence	Number of Vaccinated	Vaccinated (%)	Total	95% C.I.
Urban	359	98.9%	363	[95.7-99.8]
Rural	894	98.0%	912	[96.2-99.0]
Total	1253	98.3%	1275	[96.8-99.1]

3.3.4 Reasons for not being vaccinated

Among the 22 children not vaccinated during the campaign, the primary reason was because the mother and the child were away from home during the campaign. The second and the third most prevalent reasons for not being vaccinated during the campaign were that caretaker didn't know about the campaign and the child was sick during the campaign, respectively (Figure 3.3). Further more, for some children being vaccinated for measles before the 2006 campaign was cited as a reason for not receiving the vaccination during the campaign.

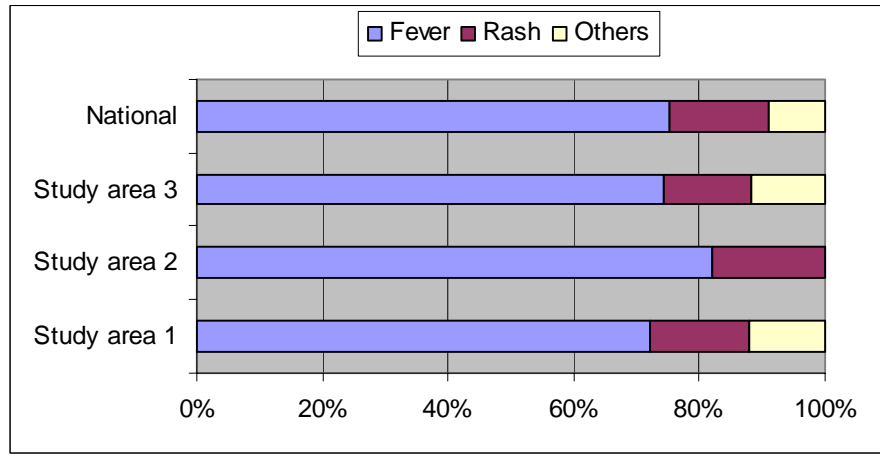
Figure 3.3 Reasons for not being vaccinated during the campaign.



3.3.5 Adverse reactions observed during the campaign

No serious adverse events following immunization (AEFIs) were reported during the survey. Only 12.9 % of all vaccinated children developed an adverse event, and as shown in Figure 3.4, the most frequent reaction reported was fever (75.2%) followed by rash (15.8%).

Figure 3.4 AEFIs reported during the household coverage survey by study area.



3.3.6 Vitamin A supplementation during the campaign

As shown in Table 3.5, 97.8% of children aged 6 –59 months included in the survey received vitamin A supplementation. There were no marked differences in coverage among the three study areas.

Table 3.5 Vitamin A supplementation results by study area.

Study area	Supplemented (n)	Supplemented (%)	Total	95% C.I.
SA1	433	96.2	450	[92.6-98.2]
SA2	420	99.3	423	[96.6-99.9]
SA3	394	98.0	402	[94.7-99.4]
Total	1247	97.8	1275	[96.3-98.8]

3.3.8 Discussion

According to this post-campaign coverage household survey, the measles vaccination coverage rate from the campaign was determined to be 98.3%. There was no gender difference for immunization coverage during the campaign with 98.4% of males and 98.1%

of females immunized in the campaign. This provides evidence that the measles campaign was able to reach the planned target population.

The majority of vaccines were delivered through health facilities (46.3%) and outreach vaccination posts (40.4%). Although the target children for the follow-up campaign were pre-school children, schools also served as temporary posts for 13.3% of vaccinated children.

Adverse events following immunization were reported only in 12.9% of vaccinated children and fever was the most common reaction. Two children (1.2%) were reported to have had abscesses after vaccination with measles vaccine; none of the cases resided in the same study area.

Although the prevalence of children not vaccinated during the campaign is so small, the reasons mentioned for not being immunized is a great concern. Out of the 22 unvaccinated children 10 (45.5%) of them mentioned reasons that can be addressed through social mobilization.

Vitamin A supplementation was an important component of the measles SIAs. All of the three study areas recorded a very high percentage of vitamin A supplementation during the campaign or in the last four months before the campaign. The coverage rate determined from the household survey was found to be higher than the administrative coverage by 3.8 percentage points. However, this difference was not statistically significant.

3.4 Children Previously Unvaccinated for Measles

When respondents were asked to recall if their children had ever been vaccinated against measles, either through routine immunization services or measles SIAs before the measles follow-up SIAs of 28th June to 2nd July, only 2.8% the children surveyed had not received a

measles vaccine prior to the campaign (zero-dose children)[‡]. Study Area 1 had the highest percentage of zero-dose children (4.5%), followed by Study Area 3 (3.7%) (Table 3.7)

Table 3.7 Percentage of previously unvaccinated and vaccinated children by study area.

Study area	Received measles vaccine prior to campaign		Never received measles vaccine		Total number of children
	n	%	n	%	
Study area 1	402	95.5	19	4.5	421
Study area 2	405	99.8	1	0.2	406
Study area 3	367	96.3	14	3.7	381
Total	1174	97.2	34	2.8	1208

Respondents reported that the primary reasons for children not being ever vaccinated against measles were “mother was sick”, “too busy”, “unaware of the need” and immunization post too far (Table 3.8).

Table 3.8 Reasons for children not being previously vaccinated against measles before the campaign

Reasons	n	Percent
Didn't know about measles vaccine	1	2.9
Immunization post too far	5	14.7
Unaware of the need	6	17.6
Went but not able to get vaccine	4	11.8
Too busy	7	20.6
Mother was sick	7	20.6
Child was ill	1	2.9
mother was not available	1	2.9
Mother forgot to take the child to clinic	1	2.9
Nr	1	2.9
Total	34	100.0

There was a statistically significant difference in previous unvaccination children by place of residence. Children living in rural areas were more likely not to be previously unvaccinated (3.8%) than urban areas (0.3%) ($p=0.0000$). The differential by study area shows that all

[‡] n=4 (0.3%) children were excluded from the analysis as the respondent did not know if the child had previously been vaccinated against measles and children less than nine months old were also excluded from the analysis.

children in urban area of study area 1 and 2 were vaccinated. In addition, out of 14 children previously unvaccinated in Study Area 3 only one child was from urban area.

3.4.2 Previously vaccinated children

Of the overall children who had been vaccinated prior to the campaign, 80.8% had received one dose of measles vaccine and 109 children (18.8%) had received two doses. Only seven children (2.4%) had received three or more doses.

3.4.3 Discussion

Results of the survey on ever vaccination status of the children surveyed indicated that it was only 2.8% of the children that were reported to be not ever being vaccinated before the campaign. The reported primary reasons for not to vaccinate children have to be addressed in the routine vaccination services as well as measles campaigns through the implementation of appropriate intervention. The fact that a remarkable number of the previously unvaccinated children were not vaccinated because either their mothers were sick or busy during the campaign as well as because the post was too far for them entails the need to increase outreach vaccination posts. Moreover, some mothers or caretakers had the misconception that once child has received the vaccine before, there is no need for additional doses. This, therefore, implies the important of raising awareness of the mothers or caretakers in particular and the society in general on issues related to the vaccination campaign through different effective communication Medias.

Taking into account the age of the child, it is important in future similar surveys to collect a separate data for routine and campaign on the reasons for child being not ever vaccinated before. This is because the reasons for not able to vaccinate during campaign may be different from the reason for routine measles immunization. To give us some insight, attempt has been made here to analysis the reasons by age of the child. The distribution by age indicated that nine children age 6-11 months, 11 children age 12-23 months, 6 children 24-35 months, seven children aged 36-47 months, and one child age 48-59 months were not ever being vaccinated. For two children aged 36-47 months, the reason provided for their not ever being vaccinated was because the mother/caretaker was busy during the previous campaign or routine. Here we can't infer from the information collected that whether the mothers/caretakers were busy during all the previous campaigns and routines or they were

busy during a single previous programme and reporting the case as if it happens during all the vaccination periods. Moreover, three children aged 12-23 months, one child aged 24-35 months, and one child aged 48-59 months were not ever being vaccinated because their mothers/caretaker were sick during the vaccination period.

3.5 Comparison Between Measles SIAs Administrative Coverage with Household Survey Coverage Results

3.5.1 Comparison of coverage rates

According to the measles SIAs administrative data, 387,277 children out of an estimated target of 406,873 children (95.2%) aged 6 -59 months were immunized with measles vaccine . The coverage rate ranged from a high of 117% in Gash Barka to a low of 76.1% in NRS.

The administrative vaccine coverage was lower in most of the Zones except in Gash Barka and Debub Zones when compared to the vaccination coverage rate determined in the post-campaign household coverage survey. The overall percentage difference between the two coverage rates was found to be 3.1%; indicating slightly higher rate for the household survey than the administrative data (Table 3.9).

Table 3.9 Comparison between measles SIAs administrative data with household survey coverage results.

Zones	Measeles SIAs Campaign		Household Survey % Immunized	Difference
	Target pop 6-59 m	% Immunized		
Anseba	67,227	90.3	99.6	-9.3
Debub	105,732	102.4	97.6	4.8
Gash Barka	82,183	117.0	95.0	22.0
Maakel	81,144	81.9	97.8	-15.9
Northern Red Sea	60,592	76.1	100.0	-23.9
Southern Red Sea	9,997	95.8	100.0	-4.2
TOTAL	406,873	95.2	98.3	-3.1

3.5.2 Discussion

The following could be some of the possible explanations for the 3.1% difference in vaccine coverage rates between measles SIAs administrative and household survey.

- ♣ To estimate the target population for EPI activities, the Ministry of Health uses a mathematical model with a fixed 3% annual population growth rate, resulting in discrepancies between estimates from the central level and the figures generated by the local administration. This population projection procedure may not provide reliable estimate of the target population as it does take into account the population dynamics observed in Eritrea as a whole and the zones in particular over the past years. This problem in target population estimate, which was to be used a denominator, in turn affected to get reliable estimate of the vaccine coverage rates in the routine delivery system. Therefore, the observed difference in vaccine coverage rates between the administrative data and the household survey could be due to the unreliable estimate of the target population for most of the Zones.

Chapter 4 Qualitative Survey Results

The objectives of the qualitative survey conducted after the campaign were to obtain qualitative information about the planning and implementation of the campaign; identify lessons learned for future SIAs; and ensure follow-up actions to maintain or increase the coverage achieved during the campaign (e.g., through improving routine immunization services).

From the six zones the following persons were interviewed (table 1): 46 health officials (6 from the zonal level and 40 from the sub-zonal level), 60 health workers from the vaccination posts, and 84 village administrators.

Table 4.1: Zonal Distribution of personnel included in the qualitative survey

Zone	Personnel interviewed			
	Health officials	Health workers	Village administrators	Total
Anseba	10	7	21	38
Central	4	12	14	30
Debub	11	17	17	45
Gash Barka	11	13	12	36
NRS	7	8	13	28
SRS	3	3	7	13
Total	46	60	84	190

4.1 Pre-campaign Planning, Preparation, and Logistics

4.1.1 Micro-planning

In all zones micro planning was conducted at zonal and sub-zonal levels with involvement of local administration and community leaders. Training was part of the micro-planning exercise at both levels. Funds from the central to Zones were reported to have arrived on time except for central zone. Majority (87%) of Health Officials at operational (sub-zonal) level reported that funds arrived on time. Twelve health officials (66%) reported that advocacy and sensitization workshops were held for the lower levels.

As part of the micro-planning efforts, 21 sub-zonal health officials (54%) said that vaccination posts were allocated based on both geography and target population size, 12

(31%) reported that allocation was based on population size **only six** (15%) said by geography. Forty eight of the healthcare workers (86%) knew the target population for their vaccination post, 5 (9%) didn't know exact target population estimate and there was no response by 5% of personnel.

All the interviewed village administrators were involved in the planning & implementation of the campaign & all of them believed they had performed the tasks entrusted upon them. Eighty administrators (95.2%) were involved in community mobilization & organizing community meetings, 12 (14.3%) were also involved in post organization in crowd controlling. Out of the **84 village** administrators 75 (89%) have given variety of responses as to what they would have done differently to improve the outcome of the campaign, 44 (59%) said none, 10 (13%) said extra social mobilization efforts.

Effective partnerships were formed with communities for the measles SIAs. Other Community members & community based organizations were involved in social mobilization activities for measles SIAs as shown in Table 2.

Table 4.2 Community members involved in the campaign as reported by the village administrators (n=84).

Community Members Involved in the Campaign	Number (%)
Community leaders & Health committee	43 (51.2%)
People's Front For Democracy and Justice	19 (22.6%)
Traditional birth attendants & community health agents	20 (23%)
Congress (Baito) members	3 (3.6%)
Youth associations	8 (9.5%)
Women associations	33 (39%)

4.1.2 Social mobilization

Among 46 health officials interviewed, 91% reported that social mobilization plans and guidelines were existed for healthcare workers and volunteers. All Zones reported that strategies were developed to identify and target hard-to-reach children and 30 sub-zonal officials (94%) with hard to reach areas & populations reportedly developed appropriate strategies to reach target children. Twenty four health officials (53%) reported Red Cross Society of Eritrea didn't operate in their localities, 11 (24%) reported involvement of Red

Cross volunteers in social mobilization activities and 10 (22%) said Red cross were poorly or not involved in the campaign at all.

The 60 health workers interviewed reported that the primary social mobilization activity conducted in their sub-zones was community mobilization by megaphones & house-to-house visit by community health agents & TBAs (85%) (Table 3). Nearly 57% of the health workers believed that the above social mob activities were the most effective method. Holding community meetings were reported as the second most effective method (26%). Posters were believed to be least effective (1.8%). Health workers did not hear any negative comments about the campaign, and only 2 (3%) reported rejections [which was](#) later resolved (it was the believe that children who have had measles disease do not need to be vaccinated again)

Table 3.3: Social mobilization activities conducted at the sub-zones as reported by health workers at vaccination posts (n=60).

Social Mobilization Activities	Number (%) of health workers who reported activity
Disseminate information to community with megaphone & H-to-H visits by CHAs	54 (85%)
Hold meetings with administrators, village elders & community partners	44 (73%)
Conduct health education for mothers, churches, and schools	21(35%)
Distribution of leaflets or posters	11 (18.3%)
Use mass media	1 (1.7%)

Out of the 84 village administrators interviewed, 95% reported that they were actively involved in community mobilization for measles SIAs through dissemination of information to their communities, primarily house-to-house, organizing meetings in their villages to inform the community about the who, when, and where for the campaign. In addition 14% of the village administrators assisted at the vaccination posts in controlling crowds, and tracing unvaccinated children in their villages.

4.1.4 Training

Training at the Zonal level was completed one week before campaign in 83% of the zones. Out of 39 sub-zones included in the survey, 60% have completed training **one week** before campaign and the remaining 40% in less than one week **before** campaign date. Zones reported that health care workers, supervisors, volunteers, community mobilizers and village administrators were trained in different components of the campaign.

All officials said that the training materials cover all key components of the campaign including supervision, logistics, injection safety and health waste management, cold chain management, how to detect adverse events following immunization (AEFI), how to determine if a child was eligible, how to complete the tally sheet, and how to identify hard-to-reach children. Out of 19 Health care workers that responded to what they believe the most useful training was, 18 (95%) reported that all the training components were equally useful.

4.2 Implementation

4.2.1 Monitoring and supervision

Supervisory activities during the campaign were reported to be effective. Health officials from the Zones and sub-zones (n=44, 97.8%) said that a supervisory plan existed for the campaign and 100% (n=47) reported that the supervisors used a checklist for monitoring the activities at the vaccination post. Over 93 % of health care workers reported that a supervisor visited their post during the campaign, and over 47% reported that the supervisor visited two or more times during the campaign. Among the 47 health officials, 48% reported to conduct rapid convenience survey to identify pockets of unimmunized children in their localities.

At the vaccination posts, more than 95% of the health care workers interviewed reported that they had sufficient supplies of all needed items. 2-5 respondents, mainly from Gash Barka zone reported temporary shortage of supplies during the campaign. However, Shortage of vaccines & syringes was not reported at all.

4.2.2 Adverse Events Following Immunization

Out of the 60 health post personnel, two reported occurrence of AEFI in their posts. One was from anaphylactic shock from Afabet, NRS that was effectively managed. The 2nd one is from Elabered, Anseba zone and the reported event is not specified.

Almost all health care workers interviewed knew about AEFI and how to respond to an adverse event.

4.2.3 Ratio of vaccinators to number of children to be vaccinated

The ratio of vaccinators to number of children to be vaccinated varied from 120 to 800 per day per vaccination team/post with average of 383 per/day/team or post. Some health officials said that it was difficult to estimate especially in hard to reach and nomadic population set ups as it is difficult to anticipate what will **be awaiting in the ground**.

4.2.4 Identifying unvaccinated children

Almost half (48%) of the health officials reported conducting rapid convenience survey during the campaign to identify pockets of unimmunized children. In some areas, the vaccination posts have complete list of eligible children and missed children were traced by village administrators & community health agents and volunteers through a house-to-house search.

4.2.5 Injection safety and waste management

Only two respondents from Gash Barka (3%) reported problems with injection safety or health waste management attributed to shortage of safety boxes. Health officials and health care workers reported that the filled safety boxes were disposed of by the burn and bury method (78%) and incineration (22%).

4.3 Mopping-up Activities after the Catch-up Campaign

Sixteen (36%) of the health officials interviewed said that mopping-up activities should occur after the campaign and the **majority of the respondents were from NRS Sea (81%)**. The primary reason (48%) given for why mopping-up activities should occur was that having nomadic people that were not effectively reached by the campaign and the next frequent reason was presence of hard to reach areas and communities (25%). The majority (64%) who reported that no mopping-up activities needed to occur, the reasons they cited were that they had already reached the target populations that were supposed to be vaccinated.

Careful planning with community leaders was recommended to be the best way to conduct mopping-up activities.

4.4 Impact of Campaign on Routine Immunization Services

To assess the impact of the measles SIAs on routine immunization services, health care workers were asked to describe any long term positive or negative impact that the campaign might caused. Forty one health workers (76% of respondents) said that the campaign had no long term impact on routine immunization services. Ten (19%) of the health care workers said that the campaign had positive impact on routine EPI as it increases public awareness on benefits of immunization and it was also used in some areas as an opportunity to vaccinate unreached children with multiple antigens by encouraging mothers to come with vaccination cards. Three health care workers (6%) said that they had concerns that community may consider the campaign as a replacement for routine and may therefore drop out for remaining doses of routine EPI. Thirty-six (60%) health workers reported that the campaign had a short term negative impact on routine EPI for they were forced either to totally close or reduce other health services including EPI because of staff shortage.

4.5 Improving Outcome of the Campaign

Fifty four (49%)of village administrators reported that they believed the campaign was a success and that they would have done nothing different to improve the outcome. However, another 10 (13%) believed that social mobilization efforts should have commenced earlier and more community mobilization efforts through meetings with the communities and house-to-house mobilization are required. Some also recommended campaign to be conducted in a convenient season and adequate campaign dates should also be not too short.

4.6 Discussion

The involvement of community members and associations as partners at all levels; the early provision of operational fund from the national level was seen to be a strong factor for the success of the campaign. Health officials from the Zones and health care workers from the vaccination posts reported that training on all key components was provided prior to the campaign and all cadres involved in the campaign were trained. All health officials reported that there were supervision plans with use of standardized checklist for monitoring. As a

result supervision was shown to be an effective component for the success of the campaign. All health personnel used local leaders and community health agents to identify and missed children. However, use of rapid convenience surveys to identify pockets of unimmunized children during the campaign was poor. For areas where vehicles could not go, camels and donkeys were used with a high level of success. There were no significant AEFI reported in the campaign and all interviewed health workers were aware of how to detect and respond to such events. There was no any observed problem regarding injection safety and all filled safety boxes were disposed either by burning in a pit or using incinerators.

While most health officials and health care workers reported that they knew their target population and how to calculate coverage rates, some respondents claimed for the presence of population estimate unacceptable to them.

Chapter 5 Conclusions and Recommendations

5.1 Conclusions

The 2006 Eritrean Measles SIAs targeting children aged 6 months to 59 months was a success, with an overall survey coverage of 98.3%. There was no significant difference between children residing in urban or rural areas or among the three study areas. Only 2.8% of children included in the household survey had not been previously vaccinated for measles prior to the measles campaign. However, children residing in urban area were more likely to be previously vaccinated than the children in the rural areas.

The post-campaign evaluation found a difference in vaccine coverage between the measles SIAs administrative data and the household survey results. The overall percentage difference was 3.1%. The inaccuracy in the estimation of the target population is believed to be the major factors explaining this difference.

The coverage survey recorded a very high percentage of (97.8.) children aged 6-59 months received vitamin A capsule and there was no significant difference among the three study areas in the coverage of vitamin A supplementation. , between the vitamin A supplementation coverage estimates from the campaign, 93.4 % based on the household survey, and 93% based on administrative data.

The successful implementation of the 2006 measles SIAs in Eritrea was made possible by the effective partnership and the involvement of different partners. Xxxxx played a leading role in social mobilization activities carried out before and during the campaign. Local administration authorities contributed significantly in the planning and implementation process, making the campaign a success.

5.2 Recommendations

After the successful completion of the 2006 measles SIAs in Eritrea and based on the data from the household vaccination coverage survey, the Ministry of Health's Expanded Programme on Immunization should consider the following recommendations:

- Strengthen routine services for immunizing children at 6 months of age.
- Make reliable estimates of the target population and age-sex structure for the routine EPI programme, with the help of assistance from relevant professionals, taking into account the existing and past population figures and its growth dynamics (fertility, mortality, and migration) in the country.
- Strengthen social mobilization to increase routine immunization services. The wealth of experience gained during the measles campaign should be used to find innovative ways to increase public demand for routine immunization services.
- Strengthen case-based measles surveillance to evaluate the impact of the SIA on measles incidence by reporting and investigating suspect measles cases, and collecting specimens for suspect cases.
- Conduct a follow-up campaign in 2008 for children aged 6-59 months based on surveillance and routine immunization data.

Annex 1 Clusters by Study Areas

Study Areas 1

Zoba	Sub zoba	Selected Villages	Cluster number
Gash Barka	Logo Anseba	Adi Na'mn Denbetatun	1
Gash Barka	Meqerka	Ad Kukuy	2
Gash Barka	Akurdet	Harnet	3
Gash Barka	Dge	Ad Jma	4
Gash Barka	Mogolo	Ad Genad	5
Gash Barka	Molqi	Agumi	6
Gash Barka	Barentu	Awla	7
Gash Barka	Gonei	Angerieb	8
Gash Barka	Forto	Felaseb Shlolob	9
Gash Barka	Haikota	Ad Lemena	10
GashBarka	La'elay Gash	Deqi Dashm	11
GashBarka	Omhajer	Golij	12
Gash Barka	Tesseney	Talata Asher	13
Debub	Mai Aini	Adi Nebri	14
Debub	Dekemhare	Weqerti	15
Debub	Dekemhare	Methalu	16
Debub	Segeneiti	Adi Kuita	17
Debub	Adi Keih	Ketema Adikeih	18
Debub	Senafe	Tha'eda Kerseyet	19
Debub	Senafe	Mai Goduf	20
Debub	Mai Mne	Adi Gela'e	21
Debub	Adi Kuala	Ga'ebien	22
Debub	Adi Kuala	Seb'u	23
Debub	Dbarwa	Adi Guda	24
Debub	Dbarwa	Tera Emni	25
Debub	Mendefera	Klewli'e	26
Debub	Emni Haili	Adi Hanso	27
Debub	Emni Haili	Agri Mekel	28
Debub	Areza	Tsa'eda Adi	29
Debub	Areza	Mai Kuak	30

Study Areas 2

Zoba	Sub Zoba	Selected Villages	Cluster #
Anseba	Adi Tekeliezan	Habren Geqa	1
Anseba	Adi Tekeliezan	Me'aldi	2
Anseba	habero	Rkb	3
Anseba	habero	Mezret	4
Anseba	habero	Regzet	5
Anseba	Elabered	Sh'eb	6
Anseba	Elabered	Halib Mentel	7
Anseba	Geleb	Chndq	8
Anseba	Geleb	Gadmay	9
Anseba	Geleb	Bielta	10
Anseba	Hagaz	Geab	11
Anseba	Hagaz	Frdgi	12
Anseba	Hagaz	Glas	13
Anseba	Hagaz	Medegol	14
Anseba	Hagaz	Zoba 01	15
Anseba	Halhal	Mai Awald	16
Anseba	Halhal	Qerthet	17
Anseba	Hamelmalo	Gamo	18
Anseba	Ketema Keren	Kebabi 01	19
Anseba	Ketema Keren	Kebabi 02	20
Anseba	Ketema Keren	Kebabi 03	21
D/ K/ Bahri	Ara'eta	Tio	22
D/ K/ Bahri	Ara'eta	Ayemenu	23
D/ K/ Bahri	D/D/K. B.	Kiloma	24
D/ K/ Bahri	D/D/K. B.	Maebele	25
D/ K/ Bahri	M/debubawi k.Bahri	Bal'ubuy	26
D/ K/ Bahri	Ketema Aseb	Shkaito	27
D/ K/ Bahri	Ketema Aseb	Asabuy	28
D/ K/ Bahri	Ketema Aseb	Harsile	29
D/ K/ Bahri	Ketema Aseb	Blien Koma	30

Annex 1:

Clusters by Study Areas

Study Area 3

Zoba	Sub Zoba	Selected Villages	Cluster number
Maekel	Serejeqa	Tsehaf Lam	1
Maekel	Serejeqa	Weki	2
Maekel	Berik	Senjbluq	3
Maekel	Gala Nefhi	Shegrni	4
Maekel	Gala Nefhi	Adi Bakuakuay	5
Maekel	Debubawi Mibrak Asmera	Adis Alem	6
Maekel	Debubawi Mibrak Asmera	Setanta Oto	7
Maekel	Debubawi Mibrak Asmera	Godaif Qehawta	8
Maekel	Semienawi Mibrak Asmera	Arba'ete Asmera	9
Maekel	Semienawi Mibrak Asmera	Edaga Arbi	10
Maekel	Semienawi Mibrak Asmera	Maekel Sefer	11
Maekel	Semienawi Mibrak Asmera	Ma/Se/Ketema	12
Maekel	Semienawi Merab	Hazhaz	13
Maekel	Semienawi Merab	Idaga Hamus	14
Maekel	Semienawi Merab	Adi Abeito	15
Maekel	Debubawi Merab	Tiravelo	16
Maekel	Debubawi Merab	Expo	17
S/ K/ Bahri	Gel'alo	Gelalo	18
S/ K/ Bahri	Foro	Gergaro	19
S/ K/ Bahri	Gindae	Zoba 01	20
S/ K/ Bahri	Gindae	Dngolo Tahtay	21
S/ K/ Bahri	Sheb	Gedged	22
S/ K/ Bahri	Sheb	Bsiese	23
S/ K/ Bahri	Ketema Massawa	Wshti Bats'e	24
S/ K/ Bahri	Ketema Massawa	Hntblo	25
S/ K/ Bahri	Afabet	Awle Reim	26
S/ K/ Bahri	Afabet	Asegeq	27
S/ K/ Bahri	Afabet	M'erab Afabet	28
S/ K/ Bahri	Afabet	Kubkub	29
S/ K/ Bahri	Afabet	QamChewa	30

Annex 2 List of Coverage Survey Teams

Zoba	Supervisor	Team number	Name of interviewer
Debub	Mulu Berhane	1	Berhane Debesay
			Habtom Asfaha
		2	Kesete kidane
			Medhanie Tewelde
		3	Nabliish Gebrekidan
		Senay Eyasu	
Gash	Teskay Fshaye	4	Fthawi Girmay
			Mahmud Mehamed
		5	weldemichael Ondemaryam
			Yonas Gebreslase
Anseba	Teskaldet Weldeab	6	Abdurazq Mehamed
			Afom Tesfaalem
		7	Aklilu Gebremichael
			Degol Dessie
		8	Desbele Mehari
		Suliaman Shekay	
S.Red Sea	Girmay teklehaymanot	9	Abduselam Hagos
			Daniel Gebrehiwet
		10	Ouqbit solomon
		Sahle Grmatsen	
Maekel	Abrehit Mehari	11	Astier Gebrekidan
			Haben Tsehaye
		12	Marta Sium
			Merhawit Gebregergsh
		13	Mlkan Geberzgiher
			Senait Zerai
		14	Tsegay Tesfagabr
	Teskay TeKlehaymanot		
N.Red Sea	Mehreteab Abraha	15	Bemnet Berhe
			Filmon Mengstu
		16	Milyon Abraha
			yemane Adhanom

Annex 3 Training Guidelines for Interviewers and Supervisors

The specific objectives of conducting the measles and vitamin A post campaign survey are;

- To establish measles immunization coverage among children between 6-59 months.
- To determine Vitamin A supplementation coverage among children aged 6-59 months.
- To elicit reasons for not immunizing children of 6-59 months and other associated factors.

To fulfill the above objectives, we need to select the starting and subsequent household in a village/town already identified as a cluster and complete forms for;

- Identification/caretaker information
- Household child questionnaire and
- Qualitative survey questionnaires

Role of the interviewer/enumerator:

The interviewer or enumerator plays a central role in a survey. And the ultimate outcome of the survey depends on how he/she conducts interviews.

In general, the responsibilities of the interviewer/enumerator in this survey will include;

1. Locating the sampled households within the clusters assigned to him
2. Conducting the interview
3. Checking the completed questionnaires to ensure that all questions were asked and the responses were legibly recorded
4. Returning to the respondents for appointments, or to finish uncompleted interviews
5. Preparing debriefing notes for the supervisor on the problems encountered, and
6. Forwarding to the supervisor all completed questionnaires

A. SELECTING THE STARTING HOUSEHOLD

The first house to be visited in a cluster/village/town should be selected at random using the EPI random walk method. You should follow the following steps for selecting the first household;

Step 1: Go to the **central location** of the cluster/village/town with a local guide who knows the locality very well; (Please note that it is the population centre and not the geographical centre).

Step 2: Randomly select the starting direction (e.g giving numbers 1=N; 2=E; 3=S and 4=W and randomly select one or by spinning a bottle/pen and choosing the direction where it points)

Step 3: Give numbers to the houses (about 9 of them) found in the direction you selected above. Assign a number to each of the households (1-9) on small pieces of paper and randomly select one. For instance if you select randomly the number 7, the 7th household will be the first household to be visited.

B. SELECTING THE SUBSEQUENT HOUSEHOLDS

After selecting the first household, the second household to be visited will be the **one which is nearest to the first**. The next **nearest** household is the one whose front door is closest to the front door of the household you have just visited. Then after, try to move clockwise (towards your right hand) from one household to the next nearest household.

“During the survey, you have to continue visiting houses within the cluster until the tenth child in the age 6-59 months have been located. At this point you would have completed one cluster”.

C. COMPLETING THE CLUSTER FORMS

In the cluster forms, list of questions to be asked (see the attached forms) at each household are provided with space to record information about ten children in each cluster selected for the study.

1.IDENTIFICATION DATA

For each cluster, fill in the following data by taking information from your supervisor:

1. Zone/zoba
2. Sub zone/sub zoba
3. Village/town
4. Cluster name/number/type

Each day of survey fill in the above 4 items of information before you start interviewing the first household. Then introduce yourself and explain the purpose of the survey.

11. CARETAKER INFORMATION

“Hello, My name is _____ and I am working with the Ministry of Health. We are conducting a national measles and vitamin A post-campaign coverage and evaluation survey. We would very much appreciate your participation in this survey. I would like to ask you about measles immunization and vitamin A supplementation status of your child (ren) after the last nationwide campaign (28th June to 2nd July 2006). This information will help the Ministry of Health to improve the immunization activities in the country. The questionnaire usually takes between 15 and 20 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons”.

Household No: Write the number of household for which you are carrying out the interview. You may have to label using a chalk if the house has no number. Tally all households visited (even if

there is no child of 6-59 months of age). It helps to know the number of houses visited to interview 10 or more respondents.

Name of the Household head: This is the key decision maker whose authority is acknowledged by other members of the household. Because the survey considers household members, the head must be a usual resident in the compound (at least three months)

Marital status of caretaker: There are five categories, put a tick (v) where appropriate.

- Never married
- Married
- Divorced
- Widowed
- Separated

Age of caretaker: Write the age of the child's caretaker in the appropriate space. Age will be provided in completed years. The interviewer should ensure that this field does not remain blank. Probing should be done for an estimate where the respondent does not appear to know the age.

Education of caretaker: Put a tick (v) where appropriate

- No education: if the mother/caretaker did not attend any schooling and cannot read or write
- Primary : if the mother/caretaker can read and write and/or has attended school grade 1-6
- Secondary : if the mother/caretaker has attended school grades 7-11/12
- Post secondary; any school attendance above grade 11/12.
- Other education _____(specify)

Religion of caretaker: Put a tick (v) where appropriate

- Catholic
- Orthodox
- Protestant
- Other Christians
- Muslim
- No religion
- Other: _____(specify)

Occupation of caretaker: The main occupation of the household head (with respect to time) should be provided in this case. The options provided are:

- Subsistence farming
- Pastoralist
- Local merchant
- Civil servant
- Unemployed
- Other: _____(specify)

Caretaker relationship with child: The interviewer should indicate the person who was interviewed. This should be either of the following persons:

- Mother
- Father
- Sibling
- Aunt
- Grand mother
- Other _____(specify)

III. HOUSEHOLD CHILD QUESTIONNAIRE

To be filled if there is a child 6-59 months. This is aimed at getting information on measles vaccination and vitamin A supplementation status of the child (ren) and reasons for not immunizing and associated factors.

Annex 3

Training Guidelines for Interviewers and Supervisors

- ◆ Child Number: This has already been printed and there is no need to write it again
- ◆ Name of Child: Write the name (s) of the Resident child in the household whose age(s) is/are between 6 -59 months. Every eligible individual in the household is to be included in the sample. Remember that the child might not be present for the interview but should be one who had at least spent the previous month in the household. Names of 10 children are required in each cluster.
- ◆ Sex (M/F): Write either M for male or F for female by asking the mother/caretaker, in the space provided.
- ◆ Age: Write the age for each child whose name is written. The exact age has to be filled in months.
- ◆ Present/Absent: The listing of the children will cover all children of household including those in boarding schools and hospitals. However, it will in most cases be impossible to reliably obtain their immunization status with respect to measles campaign. In this case the interviewer will collect the information the respondent provides.
- ◆ Measles vaccination during the campaign: This column carries the main question of the survey. The respondent should be asked if each of the children falling in the target group of the survey in the household 6-59 months was given measles vaccine during the recent national measles and vitamin A campaign conducted from the 28th of June to the 2nd of July 2006. The interviewer should explain this to the respondent as having no connection with the routine measles immunization. ***The interviewer should confirm the correctness of the information by requesting to be shown the Identification cards given during the campaign and or the part of the upper arm where the vaccine was injected.*** There are three possible responses provided as follows:
 - 1 = Yes
 - 2 = No
 - 3 = Don't know

The first two responses are clear. However, the Don't know response has been provided to ensure there is no possibility of the space remaining blank. Cases of I don't know should nevertheless be very rare.
- ◆ if the child is not vaccinated ask mother/caretaker for reasons for not being vaccinated. Listen to the mother/caretaker carefully and put (v) where appropriate. Encourage/probe for the mother/caretaker to give more than one answer if necessary.
- ✚ If the response in column 8 is yes, the respondent should be asked to provide the type of reaction developed by the child. The reactions developed are as follows:
 - 1 = Fever
 - 2 = Rash
 - 3 = Abscess
 - 4 = Convulsions
 - 5 = Anaphylaxis
 - 6 = Others (specify)

✚ The Vaccination Centre: In this column the place where the vaccination was done should be provided. There are definite centres indicated as:

- 1 = School
- 2 = Health facility
- 3 = Outreach
- 4 = Others (specify)

◆ **Column 10: Measles vaccination during routine immunization or past SIAs:**

This column will be completed with information regarding measles vaccination during previous supplemental immunization activities or routine immunization programs. It should be made clear to the respondent that the immunization being considered here does not have any connection with the just ended campaign. There are two possible responses to the question as follows:

- 1 = Yes
- 2 = No

✚ Column 12: Reason for failure to be vaccinated in past SIAs or Routine immunization. As in the case of column 8, the reasons for failure to receive vaccination during past SIAs and routine immunization should be provided. Responses provided under column 7 will apply also in this case.

✚ Name of Interviewer (s): Record date of the interview on each page and write your (interviewer) name and the supervisors should also write his/her name in the space provided after checking the filled questionnaire.

QUALITATIVE SURVEY QUESTIONNAIRES

Objectives of qualitative surveys:

- To obtain qualitative information from program managers, government officials, partner agencies, health workers and volunteers about the planning and implementation of the campaign;
- To identify lessons learned for future SIAs, and
- To ensure immediate follow-up actions to maintain or increase the coverage achieved during the campaign (e.g through improving routine immunization services, including surveillance).

To conduct qualitative reviews, use a semi-structured survey for health facility staff and health officials at zonal and sub zonal levels, and for village administrators at community level.

These questionnaires would be linked to visits for the household coverage survey.

Annex 4: Household Survey Questionnaires

I. IDENTIFICATION OF THE CLUSTER (page 1)

Zone:	SUB ZONE:	Village name
Cluster No.:	Cluster Type: 1. Urban 2. Rural	Household Number:

II. CARETAKER INFORMATIONS

“Hello, My name is _____ and I am working with the Ministry of Health. We are conducting a national measles and vitamin A post-campaign coverage and evaluation survey. We would very much appreciate your participation in this survey. I would like to ask you about measles immunization and vitamin A supplementation status of your child (ren) after the last nationwide campaign (28th June to 2nd July 2006). This information will help the Ministry of Health to improve the immunization activities in the country. The questionnaire usually takes between 15 and 20 minutes to complete. Whatever information you provide will be kept strictly confidential and will not be shown to other persons”.

1. Name of household head:	2. Marital status of mother/caretaker; 1. Never married 2. Married 3. Separated 4. Divorced 5. Widowed	3. Age of mother/caretaker (years)
4. Education of mother/caretaker: 1. No education 2. Primary education 3. Secondary 4. Post secondary 5. Others _____ (specify)	5. Religion of mother/caretaker: 1. Catholic 2. Orthodox 3. Protestant 4. Other Christians 5. Muslim 6. No religion 7. Other: _____ (specify)	6. Occupation of Head of Household: 1. Subsistence farming 2. Pastoralist 3. Local merchant 4. Civil servant 5. Unemployed 6. Other: _____ (specify)
7. Caretaker relationship to child: 1. Mother 2. Father 3. Sibling 4. Grand mother 5. Aunt 6. Other _____ (specify)	8. Were you satisfied with the information you received about the measles and vitamin A campaign? 1. Yes 2. No 3. Unsure	9. If no in question 8, why? 1. Needed more information about the campaign 2. Information provided not convincing 3. Other _____ (specify)

III. HOUSEHOLD CHILD QUESTIONNAIRE (page 2)

List all children 6-59 months of age including those who are temporarily absent

ID No.	Name of children	Sex 1=Male 2=Female	Age (in months)	Present/Absent 1=present 2=absent	Received Measles vaccine during the campaign (28 th June to 2 nd July) 1=Yes, skip to 8 2=No, go to 7	If no in (6) what was the main reason why not (See code)	Did your child develop any reaction after receiving the measles vaccine? 1=No, Go to 10 2=Yes	If Yes in (8) what was the reaction? (see code)	Where was the measles vaccine provided? 1.School 2.Health facility 3.Outreach 4.Other	Ever received measles vaccine before this campaign (28 th June to 2 nd July) 1=Yes, go to 12 2=No, skip 13	If yes in (11) how many doses 1=1 2=2 3=>3 After filling this column Skip to 14	If no in (11), what was the reason why not? (See code)	Did your child receive Vitamin A capsule during this campaign (28 th June to 2 nd July) or in the last 4 months 1. Yes 2. No
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1													
2													
3													
4													
5													
6													
8													
9													
10													
CODES FOR Questions 7 and 13 1= Did not know about it 2= Child already vaccinated 3=Post too far 4=Unaware of the need 5= Went but not able to get vaccine 6= Believe vaccine can harm 7= Health staff rude 8= Too busy 9. Other (specify)								CODES FOR Question 9 1=Fever 2=Rash 3=Abscess 4= Convulsion 5=Anaphylaxis (fainting) 6= Other (specify)					
Date of interview: ___/___/2006				Name of interviewer:				Name of supervisor:					

Annex 5: Qualitative Survey Questionnaires

A. VACCINATION POST STAFF

I. IDENTIFICATION

1. Zoba:	2. Sub-zoba:	3. Village/town:
4. Health facility:	5. Name of Respondent:	6. Name of Interviewer:
7. Name of Supervisor:		8. Date of interview: _/_/_/2006

II. QUALITATIVE QUESTIONNAIRE

SOCIAL MOBILIZATION		
1	What social mobilization activities were carried out in your sub-zone and who did you target?	
2	Which methods did you find most effective?	
3	Did you find anyone who was against measles vaccination or were there any rumors encountered?	
PRE-CAMPAIGN PREPARATIONS AND LOGISTICS		
4	What training did you receive for the campaign? What was most and least useful? <u>List all types of training</u>	
5	Did you know the target population for your vaccination post?	
6	At your vaccination post, were there sufficient supplies of vaccines, diluents, vitamin A, AD and reconstitution syringes, safety boxes, cold boxes, ice packs, first-aid kits, cotton balls, and tally sheets? <u>Answer for each item listed</u>	

MONITORING AND SUPERVISION		
7	Did your supervisor visit you during the campaign? If so, how often? What did he/she do during the visits?	
8	How did you dispose of full safety boxes?	
9	Did you report any adverse event following immunization? If so, describe. <u>If not, how would you have responded to an adverse event?</u>	
10	What did your staff do to identify any children missed in your area?	
IMPACT OF CAMPAIGN ON ROUTINE IMMUNIZATION SERVICES AND COVERAGE		
11	Did you stop or reduce health services provided by your facility during the campaign? <u>If yes, explain</u>	
12	What impact has the campaign had on your routine vaccination program to date? Describe any long-term benefits and/or problems.	
IMPLEMENTATION		
13	Did you have sufficient tally sheets to record vaccinated children at your vaccination post?	
14	How difficult/easy do you find to use the tally sheet during the campaign?	

B. HEALTH OFFICIALS AT ZONAL AND SUB-ZONAL LEVELS*I. IDENTIFICATION*

1. Zoba:	2. Sub-zoba:	3. Village/town:
4. Health facility:	5. Name of Respondent:	6. Name of Interviewer:
7. Name of Supervisor:		8. Date of interview: _ / _ / 2006

II. QUALITATIVE QUESTIONNAIRE

PLANNING		
1	How was micro planning organized at the zonal or sub-zonal level?	
2	How were vaccination posts allocated (e.g., by population? By geography?	
3	Did funds arrive on time from the central level?	
SOCIAL MOBILIZATION		
4	Did social mobilization plans and guidelines exist for health workers and volunteers at all levels?	
5	Were hard-to-reach populations identified and targeted for special strategies? <u>How did you proceed?</u>	
6	Was the role of Red Cross volunteers clearly defined in the sub-zones in which they served?	
TRAINING		
7	Was training conducted as scheduled, and if so, when?	
8	What types of trainings were conducted? <u>List all</u>	
9	Did training materials cover all key components of the campaign?	

10	Who was trained? (e.g., supervisors, health workers, volunteers, others....)	
SUPERVISION		
11	Did a supervisory plan exist for each sub-zone?	
12	Did supervisors use checklists for monitoring vaccination posts?	
13	What was the recommend ratio of vaccinators to number of children to be vaccinated each day per post, and was this followed in the field?	
14	Were rapid convenience surveys conducted during the campaign to identify pockets of unvaccinated children? <u>If yes, what further actions did you take?</u>	
INJECTION SAFETY		
15	How did the sub-zones dispose of filled safety boxes?	
16	Where there any problems identified with injection safety or waste disposal? <u>Describe</u>	
COVERAGE AND MOP-UP ACTIVITIES		
17	How were administrative coverage rates calculated for the sub-zone and zone?	
18	Do you think that mop-up activities need to occur in your sub-zone or zone? <u>Describe the reasons why or why not.</u>	
19	If mop-up activities need to occur, how would you suggest that they be conducted?	

C. VILLAGE ADMINISTRATORS

I. IDENTIFICATION

<i>1. Zoba:</i>	<i>2. Sub-zoba:</i>	<i>3. Village/town:</i>
<i>4. Health facility:</i>	<i>5. Name of Respondent:</i>	<i>6. Name of Interviewer:</i>
<i>7. Name of Supervisor:</i>		<i>8. Date of interview: _ _ / _ _ / 2006</i>

II. QUALITATIVE QUESTIONNAIRE

PLANNING		
1	Where you assigned to perform any role before/during or after the campaign? <u>If Yes, what role did you play?</u>	
2	Do you think that you performed the task entrusted upon you? <u>If yes, why do you say so, and if no, why?</u>	
3	Did other members in the community were involved in the campaign? <u>Who and in what ways?</u>	
4	What would you have done differently to improve the outcome of the campaign?	