

TECHNICAL REPORT

EVALUATION OF THE VACCINE WASTAGE SENTINEL PROJECT



EXPANDED PROGRAMME ON IMMUNIZATION, GHANA HEALTH SERVICE



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BACKGROUND AND OBJECTIVE

1.0 Introduction

Vaccines and their management form a major component of the national immunization programme. Regular supply of vaccines and their efficient management is paramount to the success and effectiveness of all immunization programmes. As a result of the above, the Expanded Programme on immunization (EPI) in collaboration with World Health Organization (WHO) instituted a vaccine wastage sentinel project in Ghana in order to determine the weaknesses in the management of vaccines in the wake of increasing demand and the high cost of vaccines and to draw lessons for improvement in the immunization programme. According to the *Guidelines for vaccine Wastage Monitoring Sentinel in Ghana (2005)*, the study was implemented to 'maximize efficient use of vaccines'.

Vaccine wastage sentinel monitoring is a process through which vaccine wastage is monitored through regular and standard reporting format in randomly selected health facilities and vaccine stores during a well specified period with operations and lessons well documented for references and training of field staff. (*Guidelines for vaccine Wastage Monitoring Sentinel Project in Ghana, May 2005*) A report from Global Alliance for Vaccine Initiative (GAVI), stating that all receiving countries should reduce vaccine wastage rates drastically and the increase in other health priorities needing immediate attention all culminate to make the vaccine wastage sentinel study an important project. Also since external support for immunization activities has shifted to victims of natural disasters like tsunamis and hurricanes there is the need for better vaccine management to reduce overall wastage.

Moreover, data reaching the National EPI office from regions indicate that there are inaccuracies in the administration of the project. For instance in some regions negative wastage rates and extremely high wastages were recorded. Regions also take too long in sending sentinel data to the national EPI office which retards the

progress of the project. Thus, proper monitoring and evaluation of the project would help to identify and address some of the problems faced by health workers in the management of vaccines.

The study aimed at monitoring and evaluating the effectiveness of the vaccine wastage monitoring project that started in April 2005.

It is worthy of note that from the time the project started there has been a reduction in the wastage rates for most of the vaccines and vaccine management at all levels has been enhanced. The table below shows the wastage rates for some vaccines from the time of the inception of the project to the end of 2005:

Table 1: Vaccine Wastages for 2005 at the National level

VACCINE	NATIONAL WASTAGE RATES (%)
BCG	41
Penta	5
Yellow Fever	20
Tetanus Toxoid	17

*From National Sentinel Monitoring data

1.1 Statement of Problem

In the 2005 sentinel study, the following setbacks were identified:

a) Incomplete reporting

Reporting default was high and it came with many errors. Reports from some of the sites do not come regularly and others came incomplete. In April for example, some sites did not include TT data in their report.

b) Late reporting of sentinel data

c) Negative wastages were recorded for some antigens in some months

1.2 Objectives

- ❖ General objective:
 - To identify strengths and weaknesses of the study, in order to replicate the strengths throughout the country and address the weaknesses.

- ❖ Specific objective
 - To assess the strengths of the project and improve upon it.
 - To empower each level of the vaccines management system to consciously assess its vaccine wastage rate regularly.
 - To compare vaccine management at sentinel sites and non-sentinel sites.
 - To determine possible ways to address the weaknesses identified.

METHODOLOGY, DATA PRESENTATION AND ANALYSIS

2.0 Introduction

The first section of this chapter which is the methodology deals with the study design, various ways by which the research settings were selected, the means by which data was realized, the sample size and the problems encountered by the research team in undertaking the vaccine wastage sentinel study.

2.1.0 Methodology

The study is a case control study, with vaccine wastage sentinel sites as cases and non sentinel sites as controls. The sampling method used in this study was multistage sampling. First, the ten regions of Ghana were stratified according to their performance in immunizations as a whole. The regions were grouped into high performing, average performing and low performing regions. Two regions were randomly selected from the high performing group and one each from the other groups also by random sampling. That is, two high performing, one average performing and one low performing region were chosen. Four regions in all were thus selected for the study. Three facilities (sentinel sites) were then randomly selected in each of the chosen regions. Three facilities in each region which are not sentinel sites (controls) were also selected through matching in order to bring to bear the effects of the study. In all, twenty-four facilities were earmarked for evaluation. Below was how the regions were selected.

Table 2: Regions selected for the evaluation of the Vaccine Wastage Sentinel Project

Performance Level	Regions	Randomly selected regions
High	Ashanti, Northern, Brong-Ahafo, Upper West	Ashanti and Northern
Average	Central, Eastern, Upper East, Western	Central
Low	Greater Accra, Volta	Greater Accra

2.1.1 Study Areas

The research was conducted at and confined to four regions in the country. These are Ashanti Region, Central Region, Greater Accra Region and Northern region. These regions were selected using a multi-stage sampling technique. Some of the facilities that were earmarked for evaluation could however not be assessed since some of them were not sentinel sites as supposed to be.

Table 3: Evaluated health facilities

REGIONS	DISTRICTS	SENTINEL SITES	NON-SENTINEL SITES
Ashanti	Ejisu-Juaben Asante-Akim North Bosomtwi-Atwima	Ejisu-Juaben HC Konongo HC Bosomtwi-Atwima HC	Peminase Health Centre, Pramso HC, Manhyia Polyclinic
Central	Abura-Asebu- Kwamakese, Komenda- Edina-Eguafo-Abrem, Assin North, Awutu- Effutu-Senya	Assin-Bereku HC Assin-Kushea HC Elmina Urban HC	Moree Health Centre
Greater Accra	Accra Metro, Dangbe West, Dangbe East	Prampram Health Centre, Old Ningo Health Centre, Adabraka PC, Kaneshie PC	National EPI Cold Room, Dodowa Health Centre, Legon Hospital
Northern	Zabzugu-Tatale, Tamale Municipal, Yendi	Tatale H/C, Yendi Town Clinic, Nyohini Clinic	Ngani Health Centre, Nanton CI, Sang Health Centre

2.1.2 Time Frame

The monitoring and evaluation of the Vaccine Wastage Sentinel Project study was timed as follows.

Table 4: Time Line of Activities

Proposal developing	July-August, 2006
Pre-testing of tools	August, 2006
Finalization of tools	August, 2006
Fieldwork	May-June, 2007
Data analysis	June, 2007
Draft report	July, 2007
Finalization of report	March, 2008
Publication	June, 2008

2.1.3 Data Source and Research Instruments

Primary data was the main source of data for the study. Secondary data in the form of reports from other surveys were also used in the discussions.

The data collection instrument adopted were field surveys conducted in the above named regions. This was achieved through the administration of both structured and unstructured questionnaires to health staff who work with cold chain and immunizations. A supervisory checklist was also employed to critically examine the condition of vaccines as well as the quality of the cold chain. Three separate research questionnaires were used in the study depending on the target group. Thus different questionnaires were designed for in-charges at: Sentinel sites, non-sentinel sites and district supervisors at the regional level.

2.1.4 Preliminary Survey

A preliminary study was conducted at La General Hospital which is also a sentinel site to pre-test the research tools. This enabled the research coordinators to plan and budget well for the study. It also enabled field officers to have an idea about the number of hours to be spent at each health facility.

2.1.5 Sample Size and Sampling Procedure

Purposive sampling technique was the technique employed by the researcher in selecting all the respondents for the study. In all, 23 cold chain managers were interviewed from the six health facilities selected. Out of the six health facilities selected, three (3) were sentinel sites and the remaining three (3) were non-sentinel (control) sites. One (1) questionnaire and one (1) supervisory checklist were also administered to in-charges at health facilities visited.

2.2 Problems Encountered

The difficulties encountered in the study were;

- Some health staff interviewed were aggrieved because they felt the project was meant to expose them (those not doing the right thing) and were therefore reluctant and uncooperative.
- The physical count of vaccines made the field work very cumbersome, tiring and time consuming.

2.2.1 Limitations

1. The respondents, that is, cold chain managers at sentinel facilities and non-sentinel facilities were not evenly selected.
2. Sentinel sites and non-sentinel sites were not evenly selected.
3. Some respondents at some sentinel sites had been transferred from non-sentinel sites and therefore were not trained.
4. Required number of control sites in central region could not be achieved whilst an additional sentinel site in Greater Accra region was assessed.

2.3 Data Presentation, Analysis and Discussion

This section deals with the presentation and the analysis of data collected from the field. All the tools that were employed in the study were simultaneously analyzed. SPSS was the main software that was used to analyze data from the field. EpiInfo (Statcalc) was also used.

The tables below show the number of questionnaires administered in each region and the type of facilities that were evaluated in the study.

Table 5: Regional distribution of the study

Count

Regions	Frequency	Percent	Valid Percent	Cumulative Percent
Ashanti	6	26.1	26.1	26.1
Central	4	17.4	17.4	43.5
Gt. Accra	7	30.4	30.4	73.9
Northern	6	26.1	26.1	100.0
Total	23	100.0	100.0	

Table 6: Type of facility evaluated in each region

Count

Region	Type		Total
	Control	Sentinel	
Ashanti	3	3	6
Central	1	3	4
Gt. Accra	3	4	7
Northern	3	3	6
Total	10	13	23

In all, 23 questionnaires were administered at the health facility level. 6 questionnaires were administered in Ashanti and Northern Region, 4 questionnaires in Central Region and 7 in Greater Accra Region as shown in Table 1. From Table 3, 13 sentinel sites and 10 non-sentinel sites (control) were evaluated. 3 non-sentinel sites were assessed in Ashanti Region, 1 in Central Region and 3 each in Greater Accra and Northern Regions. 3 sentinel sites were evaluated in Ashanti, Central and Northern Regions and 4 in Greater Accra Region.

Table 7: Trained and untrained staff at the various health facilities

Count

		Trained		Total
		No	Yes	
Type	Control	3	7	10
	Sentinel	4	9	13
Total		7	16	23

Out of the 23 respondents, 16 had had training on vaccine management and 7 were untrained. Among the 13 staff who worked at sentinel facilities 9 had had training on vaccine sentinel monitoring whilst 4 had not received any training at all on the project. However 7 respondents out of 10 at non-sentinel sites had also had training on vaccine management.

Table 8: Possession of field guide by respondents

Count

		Copy of guide		Total
		No	Yes	
Type	Control	9	1	10
	Sentinel	4	9	13
Total		13	10	23

From the table above, 13 out of 23 respondents do not have any reference book on vaccine management. 4 out of 13 cold chain managers at sentinel sites did not have any field guide on vaccine wastage monitoring. 3 of those working at sentinel sites claim they were transferred from a non-sentinel site and had neither had training nor a field guide to work with. The last person responded that the person who went

for the sentinel training from their facility had been transferred and went away with the field guide. The only person at a non-sentinel site who had a field guide happened to be at a sentinel site before being transferred to a non-sentinel site. Some non-sentinel site staff who did not have any field guide on vaccine management responded that they had never had any book on vaccine management before. Others responded that those who have those books at their facility have taken them as their personal properties.

9 out of the 13 respondents from sentinel sites answered that the Guidelines for vaccine Wastage Monitoring Sentinel in Ghana which was given to them at training on the same project has been very useful not only in the administration of the project but also serves as a very important reference tool so far as vaccine management is concerned. Others responded that the guide helps them monitor and keep track of stock levels and also enables them to calculate their usage and wastage rates.

Table 9: Supervision of the project

Count

		Supervision		Total
		No	Yes	
Type	Control	2	8	10
	Sentinel	4	9	13
Total		6	17	23

Table 9 above gives details on how the vaccine wastage sentinel project was supervised. From the table a majority of 9 out of 13 respondents from sentinel sites answered that there had been supervision of the project in one way or the other.

However, 4 sentinel facilities claim that the project was never supervised. 2 respondents from non-sentinel sites also said they had never had any supervision from a next higher level.

In a follow up question to those who responded in the affirmative, an overwhelming majority responded that the project was not properly supervised. According to respondents there was not even a single occasion where a team from a higher office had visited purposely on the vaccine wastage monitoring project. Supervision on this project tended to be integrated rather than specific. Field officers from the national level also noted that the project was not specifically supervised. That is the project was seldom supervised during campaign periods and or general supportive supervision to health facilities. This was also evident in facilities visitor’s book as some facilities had about December, 2005 as the last date the project was monitored.

The table below shows the responses of cold chain managers when they were asked whether or not they sent reports to the next higher level.

Table 10: Sending of Reports

Count

		Send Reports	
		Yes	Total
Type	Control	10	10
	Sentinel	13	13
Total		23	23

From table 10 above, it is evidently clear that all respondents do send reports being it a sentinel site or a non-sentinel site. It was however noted from a follow up question that the last time some of the sentinel sites sent a report dates as far back

as December, 2005 (7 months after the inception of the project). When asked why reports were not up-to-date, the following responses were given:

- 1) Lack of feedback from the next higher office
- 2) They were told the project would last for a year
- 3) Shortage of sentinel reporting forms
- 4) No motivation
- 5) Sentinel trained staff transferred

However, all facilities in both sentinel and non-sentinel sites had their EPI monthly returns filled and submitted up-to-date which is highly commendable.

The following are some of the problems health workers have encountered in the administration of the vaccine wastage sentinel project:

- So many forms to fill coupled with lack of time
- Occasional shortage of forms
- Lack of motivation
- No supervision
- Frequent transfer of staff
- Lack of cooperation from some community health nurses
- Under reporting of vaccine wastage as a result of fear

Respondents were also asked to ascertain the lessons they have learnt since the inception of the project. Various responses were given. Prominent among them are the following:

- Helps staff to adopt the practice of first-in-first-out (FIFO)
- Helps to monitor vaccine usage and wastage rates
- Makes EPI monthly report easier
- Acknowledge the importance of documentation
- Helps to maximize efficient use of vaccines

- Helps keep track of vaccine issues and balances
- Maintaining the appropriate stock level
- Keeps you up-to-date with respect to cold chain

Respondents at sentinel sites were asked whether it is worth continuing with the project. This question was not applicable (Na) to respondents in non-sentinel sites. The question was therefore answerable to only 13 respondents. Their opinions are summarized in table 11 below:

Table 11: Responses on whether it is worth continuing with the project

Count

		Worth Continuing			Total
		Na	No	Yes	
Type	Control	10	0	0	10
	Sentinel	0	1	12	13
Total		10	1	12	23

From the table above, only 1 person responded that it is not worth continuing the vaccine sentinel monitoring project. His opinion was that if training on vaccine management is strengthened there would not be the need to continue with the project. On the other hand, respondents from non-sentinel sites were asked whether it would be necessary to institute a vaccine wastage monitoring project to help maximize efficient use of vaccines.

Their responses are summarized below:

Table 12: Opinion on the institution of a vaccine wastage monitoring project

Count

		Wastage Study Necessary			Total
		Na	No	Yes	
Type	Control	0	1	9	10
	Sentinel	13	0	0	13
Total		13	1	9	23

From table 12, 9 out of 10 respondents answered that it would be necessary to institute a project to monitor vaccine wastage. Their reasons were that:

- Such a project will help find solutions to reducing vaccine wastage
- Help in improving vaccine management
- Introduce staff to new strategies in vaccine management

Table 13: Responses on whether vaccine wastage monitoring should be introduce nationwide

Count

		Introduce nationwide			Total
		Invalid	No	Yes	
Type	Control	0	2	8	10
	Sentinel	1	0	12	13
Total		1	2	20	23

Respondents from both sentinel and non-sentinel sites were asked whether vaccine wastage sentinel project should be introduced nationwide. Only 2 respondents

answered negatively to this question. This is shown in table 13. The reasons given by those who said the project should be introduced nationwide are:

- To enable every staff at every facility respect vaccines
- To help staff keep track with vaccines and other logistics
- Improve the technical know-how of staff on vaccine management
- For all health workers to be more responsible
- Enable other health staff monitor wastage and usage rates
- To offset the issue of staff transfer in relation to the project
- For stock taking to be known universally
- Help improve efficient use of vaccines at all facilities
- To Share knowledge
- The project captures a lot of information necessary for decision making
- To reduce vaccine wastage at all levels and all facilities
- To improve report writing

The following are the views of respondents on how the project could be improved:

- Regular and intensified supervision
- Refresher courses on vaccine wastage monitoring
- Training all public health staff on the project
- Regular supply of monthly sentinel reporting forms
- Allay fears on vaccine wastage on the side of field workers
- Financial support (making photocopies and transportation cost)
- Acknowledge and appreciate hard working staff

The training needs required for staff working on the project according to respondents are as follows:

- Training on the filling of monthly reporting forms
- Calculation of vaccine wastage and utilization rates

- Stock keeping techniques
- Vaccine procurement procedures
- The importance of documentation
- Vaccine estimation (Minimum and maximum stock)
- Recognizing and acting on vaccines with VVM change (all stages)

Respondents at sentinel sites were asked whether they have received any amount on the project before. Their responses are summarized in the table below:

Table 14: Responses on whether respondents have received any cash on the project before

Count

		Any amount received			Total
		Na	No	Yes	
Type	Control	10	0	0	10
	Sentinel	0	3	10	13
Total		10	3	10	23

From the above table, 10 respondents out of 13 staff interviewed at sentinel sites answered that they had received some money on the project. The remaining 3 respondents said they had not received any monies since the inception of the project. Those who answered positively to this question are mostly staff at the district level who were given funds to train those at the facility level and to provide sentinel forms for participants as well as those who received a per- diem during the training.

Table 15: Responses on whether there is enough motivation for staff working on the project

Count

		Motivation		Total
		No	Yes	
Type	Control	7	3	10
	Sentinel	11	2	13
Total		18	5	23

The table above shows the responses on whether staff working on the vaccine wastage sentinel project are motivated. In total 18 out of 23 respondents that were interviewed believe that staff are not motivated enough.

The reasons given were as follows:

- No interest was shown by higher levels
- Poor supervision
- Logistics (sentinel forms) not forthcoming
- Capacity never strengthened
- No feedback from the time of its inception
- No refresher training
- Funds for submission of monthly reporting forms not enough

Those who answered that there is enough motivation for the project take comfort from the fact that it helps them in completing their monthly report. Others also felt that the good relationship between them and their supervisors motivates them to give out their best. It is worthy of note however that a lot of respondents did not

consider motivation to be only financial. Regular supervision and feedback were very paramount among the reasons given.

The above was also evident when respondents were asked whether proper supervision would improve the administration of the project in particular and vaccine management as a whole. This is shown in table 16.

Table 16: Will supervision improve vaccine administration

Count

		Supervision required	
		Yes	Total
Type	Controlled	10	10
	Sentinel	13	13
Total		23	23

The study also assessed the quality of the project, cold chain and record keeping at the various facilities visited. This became possible by the use of a supervisory checklist that was designed to facilitate the process. The outcomes of these are tabulated below:

Table 17: All portions on the monthly reporting forms filled

Count

		All portions filled			Total
		Invalid	No	Yes	
Type	Control	1	6	3	10
	Sentinel	4	1	8	13
Total		5	7	11	23

From the above table, it is clear that sentinel sites are better off in the completion of forms than non-sentinel sites. Out of the 10 non-sentinel sites sampled only 3 had their monthly reporting forms fully completed. A maximum of 7 respondents had unfilled portions on their monthly reporting forms that were assessed. On the other hand, only 1 out of 13 sentinel sites had unfilled portions in their monthly reporting forms that were assessed. 5 questionnaires were invalid, that is questionnaires were not well administered by interviewers.

All health facilities visited had temperature monitoring charts on every refrigerator containing vaccines. However, not all these charts were monitored. This is shown in the table below:

Table 18: Are all temperature charts monitored

Count

		Charts monitored			Total
		Invalid	No	Yes	
Type	Control	1	3	6	10
	Sentinel	4	0	9	13
Total		5	3	15	23

From table 18, sentinel sites are better than non-sentinel sites in the monitoring of temperature charts. All sentinel sites monitored their temperature during the time of the study as against 3 out of 10 non-sentinel sites which did not monitor their temperature. 5 questionnaires were invalid, that is not well administered by interviewers.

Out of the 23 health facilities visited, only one facility had a malfunctioning thermometer which the center was however aware of. Not all vaccines were being stored at the appropriate temperature. Some facilities stored vaccines as low as between +17 and +22 degrees Celsius. Two other facilities had their vaccines mixed up in black polythene bags without labels which make it difficult for them in tracing vaccines.

Table 19: Expired vaccine stored in refrigerator

Count

		Expired vaccines stored in fridge			Total
		Invalid	No	Yes	
Type	Controlled	1	7	2	10
	Sentinel	4	8	1	13
Total		5	15	3	23

The above table gives details on whether expired vaccines are being kept among potent vaccines. Again 5 questionnaires were invalid as shown in table 19 above. Both sentinel and non-sentinel sites had some facilities keeping expired vaccines in their refrigerators. Large quantities of yellow fever, measles and tetanus toxoid vaccines were found to be over-stocked in all regions visited. Some of these vaccines were due to expire in January, 2008. However a considerable number of facilities visited had a number of vaccines with VVM change (stages 2-4) either in or outside their refrigerator. This is shown below:

Table 20: Vaccines with Vaccine Vial Monitor change found

Count

		Vaccines with VVM change found			Total
		Invalid	No	Yes	
Type	Control	1	5	4	10
	Sentinel	4	8	1	13
Total		5	12	5	23

In all a total of 3,521 unopened vaccines to be discarded were seen in the 23 facilities isited. These are listed below:

Table 21: Unopened Vaccines to be discarded

VACCINES	UNOPENED TO BE DISCARDED (VIALS)
BCG	179
Hib	145
DPT-Hep B	3
OPV (20 doses)	1,403
Measles (10 doses)	1,756
YF (10 doses)	35
TOTAL	3,521

Table 22: Observation of stock levels

Count

		Stock levels observed			Total
		Invalid	No	Yes	
Type	Control	2	8	0	10
	Sentinel	5	7	1	13
Total		7	15	1	23

Out of 23 facilities assessed, 7 questionnaires were invalid, that is, not correctly administered by interviewers. Out of the 16 facilities that were visited only 1 had the maximum and minimum stock levels boldly written in the vaccine ledger and also observed. A major revelation of this study is that most health staff did not know how to calculate minimum and maximum stock levels which accounted for over-stocking in almost all facilities visited.

CONCLUSION AND RECOMMENDATIONS

3.0 Introduction

This chapter basically focuses on the summary of the major findings, strengths, weaknesses of the project and recommendations to the major findings.

3.1 Summary of major findings

Findings

- Polio vaccines were being frozen in some districts, sub-districts and at the facility level
- Some vaccines were being stored in solar powered fridges at temperatures of +17 and +22 degrees Celsius.
- Large quantities of expired vaccines are being stored in fridges together with new vaccines.
- Large quantities of polio, measles and haemophilus influenza type b vaccines with vaccine vial monitors ranging between stages 2 and 4 were identified.
- Vaccines stock in ledger books do not match with physical count of vaccines in fridges.
- Vaccine ledger books are not being filled daily.
- Minimum and maximum stock levels not being estimated, leading to over-stocking and under-stocking.
- Conditions of Open Vail Policy are not being observed in some facilities.
- Vaccines are being mixed up and stored in a single plastic bag hence inability to know real stock levels.

- Vaccine ledger books are not accessible when the person in charge of the cold chain is not around.
- Free/doubtful charting of temperature charts in some facilities, moreover charts were not being filled daily.
- Staff unable to regulate solar/gas fridges
- Some of the staff managing the vaccines at most of the facilities visited are not adequately trained
- Some non-sentinel health facilities manage vaccines better than sentinel centres.
- Vaccine sentinel forms were woefully inadequate. No vaccine sentinel reporting forms were seen in almost all sites visited
- Acute manpower shortage has limited number of people who could be designated to carry out the study when those trained were transferred or went on leave.
- Staff complained that because the project was never supervised since its inception little importance was attached to it.
- At all levels, supervision and monitoring were found to be very inadequate.
- Some respondents felt that it was better to have stressed the need for sustainability as opposed to providing seed money which was never replenished.

3.2 Strengths of the project

- Almost every trained respondent acknowledged that the project has been very useful in improving vaccine management, in all its ramifications, especially at the operational level.

- They also found the guidelines to be a very useful reference tool especially in the calculation of wastages.
- The project has contributed to the quality of service in some health facilities through better forecasting, storage and handling of vaccines and the use of data generated.
- Some facilities have continued the project, despite all problems of poor funding and inadequate supervision and feedback.
- Some districts have included facilities which are not part of the sentinel project in order for those facilities to efficiently manage their vaccines
- National cold room well organized and with good vaccine management
- Even though supervision from the Regional level was very limited, it tended to be integrated when it occurred.

3.3 Weaknesses of the Project

- Some respondents were not aware of the vaccine sentinel monitoring study since it stopped just after one year.
- There was little or no feedback coupled with de-motivation, some thought the project had been “abandoned”.
- Filling of the sentinel reporting forms is time consuming
- Sentinel sites did not have enough forms and had to resort to making photocopies from their own funds when the “seed money” was exhausted leading to shortage of forms.

3.4 Conclusion

Vaccine wastage sentinel monitoring is a process through which vaccine wastage is monitored through regular and standard reporting format in order to identify and address problems faced by health workers in the management of vaccines. From the study carried out, major findings were that minimum and maximum stock levels were not being observed, there was poor temperature charting of the cold chain and a lot of vaccine wastage on the field especially in facilities that were not part of the sentinel project on vaccine wastage.

The research team therefore recommends that the project be continued and also scaled up to all facilities in the country. The team also recommends that other health workers involved with vaccine management, for example all disease control officers and community health nurses be trained on vaccine wastage monitoring.

3.5 Recommendations

After careful analysis of all the data gathered, the following recommendations were arrived:

1. There is the need to retrieve excess vaccines (Measles, OPV, TT) immediately from all levels.
2. Vaccine management training for operational level staff (district, sub district, facility levels) should be carried out as an immediate step.
3. Meeting with the regions to provide feedback on the vaccine wastage monitoring project.
4. Vaccine Management Training should be owned by Regions and Districts so that they can factor it into their budgets (they should include it in their quarterly monitoring visits).
5. Regular Monitoring and Integrated Supportive Supervision will encourage the people on the project to work better.

6. Strict adherence to vaccine storage regulations.
7. In the light of the ongoing power crisis, pending when we would have thermo-stable vaccines, alternative power sources should be considered.
8. National staff to have an orientation on solar/gas fridge regulation/management.
9. To retrieve excess vaccines immediately after campaigns from facility to regional levels.