



**WORLD HEALTH ORGANISATION
REGIONAL OFFICE FOR AFRICA**

**Evaluation guidelines for
Measles supplemental immunization
activities**

Revised January 2006

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INTRODUCTION:

As one of its measles mortality reduction strategies, WHO/AFRO recommends providing target-age children with a second opportunity for measles vaccination. The goal is to immunize children missed through routine vaccination or who failed to seroconvert with one dose. Immunization programs can deliver this second opportunity through campaigns or routine services. This strategy, if well implemented, can substantially reduce disease transmission and deaths beyond what a one-dose routine vaccination strategy alone can achieve.

Governments and partner agencies closely scrutinize measles supplemental immunization activities (SIAs) in the AFR region. These activities require substantial commitment of staff and resources. There are concerns about injection safety and waste management during campaigns, as well as the impact of SIAs on routine vaccination services and the polio eradication initiative.

To help address these concerns, WHO-AFRO prepared these guidelines to help program managers build checks into campaign planning and implementation. These guidelines introduce a standardized evaluation approach in countries that WHO-AFRO will support for accelerating measles control and mortality reduction. This approach involves assessing three types of performance:

- 1) *Process*: how well staff prepared for and implemented the campaign; in particular, how well they identified and vaccinated all target-age children, and how they addressed quality and safety of vaccination services.
- 2) *Outcome*: the immediate observable achievements of the campaign activities (measured by vaccination coverage).
- 3) *Impact*: the resultant reduction in disease burden over time (i.e., mortality and morbidity as measured through surveillance).

These guidelines cannot cover all aspects of evaluation in detail. References are provided throughout these guidelines.

In general, programs with routine measles coverage of less than 90% tend not to benefit by providing the second opportunity through routine immunization services, and may choose campaigns. These guidelines will focus on evaluation of campaigns.

PROCESS EVALUATION

Objectives and Scope of Process Evaluation

Process evaluation focuses on activities to ensure safe and effective administration of vaccinations to all target-age children. It verifies both quality of vaccination services and the success in vaccinating even the hardest-to-reach children. It also prescribes corrective actions to be taken immediately and for future activities.

Process evaluations should assess performance of staff involved in the campaign at all levels:

- National-level campaign coordinators
- Provincial or district-level health authorities
- Health facility staff
- Vaccination post staff
- Volunteers

Focus on the performance of workers who actually deliver the vaccination services—namely the vaccination teams. These teams include the vaccinators, volunteers who help them and who mobilize communities, and their direct supervisors.

The Interagency Coordination Committee (ICC) or equivalent in each country should agree on who should coordinate and conduct the evaluation, and advise the content, timing and methods to be used.

Timing of Process Evaluation

Process evaluation should occur before, during and immediately after the SIAs are conducted. Evaluators should observe vaccination teams directly in order to assess them objectively. In addition, health staff need to give their impressions of campaign implementation while the campaign is still fresh in their minds. Optimally, therefore, countries should schedule process evaluations to occur at least 2 weeks before the campaign's start (for pre-campaign preparations), during the campaign (for implementation), and within a month of completing the campaign (for any additional qualitative assessment).

Pre-Campaign Process Evaluation

Verifying preparations is essential to ensuring a quality campaign. Referring to national plans of action and microplans, program managers can select the key activities that they wish to verify as part of assessing preparations. Through structured visits to districts and vaccination posts, staff can review preparations, help solve last-minute problems, and motivate staff. Simple checklists can be used during these visits to gather this information, and the results can be summarized as part of an overall evaluation report. These checklists help to focus the supervisory efforts on important elements of the campaign preparation like the training of health workers and volunteers, social mobilization activities, availability of funds, logistics and supplies, as well as the coordination of activities between different levels. See Annex 1 for a suggested pre-campaign checklist.

A priority for pre-campaign assessment is reviewing social mobilisation activities to “prime” the population.

Program managers should conduct “spot checks” particularly in hard-to-reach areas or populations, by visiting 10-20 households in randomly-selected neighborhoods 2-5 days before the campaign. They should ask if a child’s primary caretaker knows about the campaign, the dates, the target population and the location of the nearest vaccination post, and if the caretaker is willing to have the child vaccinated. If social mobilization is weak, local staff and volunteers must intensify efforts and/or modify messages immediately.

Intra-Campaign Process Evaluation

A. Assessing quality and safety of service

Direct observation of activities at vaccination posts is the most effective way to assess quality and safety of services.

The following steps will help structure direct observation.

First, program managers can define what they feel are the key objectives and indicators of successful performance by vaccination teams and supervisors. Countries can adapt the suggested list of objectives and indicators in Annex 2 and incorporate them into national measles plans of actions or evaluation plans. These become the “benchmarks” for evaluating performance.

With these objectives and indicators in mind, program managers can design a supervisory system and checklists to assess performance. The WHO/AFRO Measles SIA Guidelines contain suggestions for establishing supervisory systems. Most

programs assign supervisors at different levels to oversee vaccination teams and volunteers, and create checklists to help guide monitoring. These checklists can also become excellent sources of data to quantify performance for evaluation purposes.

TIP: Checklists limited to one page are more likely to be accepted and used consistently. See Annex 4 for an example.

Countries should organize a team of independent observers to monitor quality during vaccination sessions. Independent observers will assess activities more objectively, and will not be distracted by other duties as would program managers and supervisors. To help measure performance, Annexes 3 and 4 provide guidelines and suggested key questions for supervisors and observers to address.

There are several ways to use checklists. Some programs have supervisors complete checklists for each site visit. Others prefer to have supervisors complete checklists completed for only part of the campaign when most errors occur (e.g., the first 1-2 days of the campaign), then to have them used only as *guidelines* for the remainder of the campaign.

Experience shows that supervisors often do not complete checklists consistently during campaigns. They get busy troubleshooting logistics and completing other required reporting forms. Given this reality, WHO/AFRO suggests the following approach:

Suggested Uses of Supervisory Checklists:

- 1) ***For purposes of campaign supervision: Program managers should encourage supervisors to complete checklists at least for the first 1-2 days of the campaign, and should verify their use through site visits with supervisors. At the end of each day, district-level program managers should review these completed checklists and address any problems noted.***
- 2) ***For purposes of campaign process evaluation: Midway through the campaign, independent observers can complete supervisory checklists as evaluation tools. They can either use existing checklists or modified versions with more detailed observation and record review.***

Campaign coordinators should assign observers to vaccination posts representing different regions, populations and working conditions. However, observers should focus their attention to high-risk areas or populations. Program managers should immediately address any critical problems identified by observers.

B. Assessing the campaign's success in reaching all target-age children, through Rapid Convenience Monitoring:

WHO/AFRO encourages monitoring of vaccination coverage at various levels during the campaign. This gives some idea of on-going progress in reaching target-age children. Unfortunately, vaccination coverage often relies on census or registration data that may not accurately reflect a target population. Coupled with migration and other factors, the resulting denominators may skew coverage estimates, generating unrealistically low or high rates (e.g., 130% coverage).

To help validate these figures, WHO/AFRO recommends complementing coverage monitoring with *rapid convenience monitoring in high-risk areas*.

Rapid convenience monitoring helps to identify pockets of unvaccinated children for immediate mobilization or later mop-up efforts, and to help evaluate the effectiveness of social mobilization.

Rapid convenience monitoring is not a formal coverage survey and will not produce statistically valid coverage estimates. The formal surveys (discussed in the Outcomes section below) will provide such data. Nonetheless, they are excellent *programmatic tools* for local managers to identify poorly performing areas for immediate action. They also are useful *evaluation tools* to assess the success of the campaign strategies in reaching the hardest-to-reach children.

Steps for conducting rapid convenience monitoring:

- 1) Determine who should conduct these monitoring, such as supervisors, health staff and/or outside observers.
- 2) Select all well-recognized high-risk areas or populations in which to conduct rapid convenience monitoring in each district, using such criteria as:
 - Populations known to have a disproportionate share of measles cases;
 - Areas of un-immunized or under-immunized children in urban and peri-urban areas;
 - Populations with poor sanitation;
 - Populations inhabiting difficult or mountainous terrain;
 - Refugees, internally displaced persons, migrant workers and other transient populations;
 - Politically and/or socially marginalized populations or minority groups;
 - Homeless or street children;
 - Religious groups who oppose vaccination.
- 3) Conduct at least 5 surveys in each high-risk area OR at least 2 in each area covered by a vaccination team.

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- 4) Select a geographic area, such as a neighborhood or village, where target-age children can be found. Start in a central location, pick a direction at random to start, and begin with the first household. (See figure 1)
 - 5) In each household, ask the parent or caretaker for eligible children. Ask for their age and whether all eligible children have received a dose of measles vaccine during the campaign, and if not, the reasons for non-vaccination. Record the responses on the suggested monitoring tool (Annex 5). Continue to the next closest household, until 20 different households with children have been tallied.
 - 6) For children unvaccinated during the campaign, summarize the top 3-5 reasons given for non-participation noted. This will help focus social mobilization efforts immediately and for future campaigns and routine immunization programs.
 - 7) If the number of “not vaccinated” in a given locality is more than 2 children out of 20 households, organize a further house-to-house investigation, and consider conducting mop-up vaccination. Some guidelines:

Take action if two or more children are unvaccinated in an area while doing rapid convenience monitoring !

- ***If immunization is still on-going, house-to-house mobilisers should encourage caretakers to take all un-immunized children to the vaccination posts. Where the reason is resistance or specific rumors, more experienced supervisors should work with key informants and local leaders to try to overcome these difficulties.***
- ***If the immunization posts have been closed or vaccinators have moved elsewhere, any pockets showing more than 2 children as “not vaccinated” should be preferably targeted for a re-visit by the vaccination team before the campaign ends, or for a mop-up activity at the end of the campaign.***

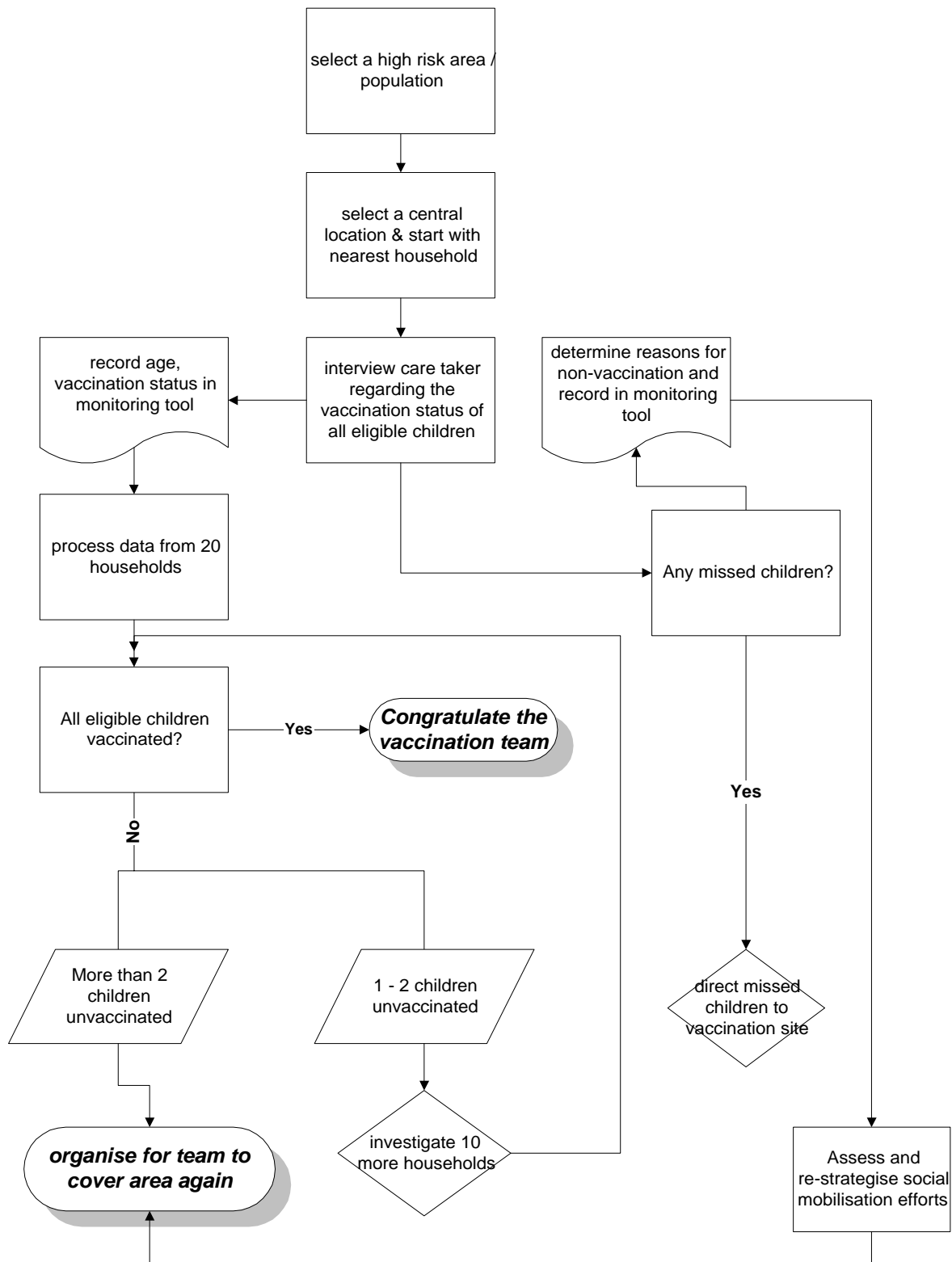


Figure 1. Flow chart of rapid convenience monitoring.

General Qualitative Process Review (for All Campaign Phases)

Countries may supplement the methods described above by conducting semi-structured interviews during all phases of the campaign. The objectives would be:

- 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;
- 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).

There are a number of ways to conduct this qualitative review:

- 1) Administer a few brief questions for health officials and staff during visits to check on pre-campaign preparations;
- 2) Use a semi-structured focus interview form for health officials, community leaders and staff of health facilities in close proximity to clusters selected for the household coverage survey. (See Annex 6 for suggested interview questions.)
- 3) Within a month of the end of the campaign, conduct national or district-level meetings to solicit feedback from campaign workers and community leaders.

Campaign Report

Preliminary process evaluation results should be incorporated into the WHO-AFRO Technical Report outline (Annex 7) and submitted to Government officials, ICC member agencies and WHO-AFRO within 5 weeks of the campaign. More detailed evaluation reports should follow once all evaluation findings are complete. These reports should be shared within the Ministry of Health, other Ministries, with partner agencies, key stakeholders, and with district and local workers involved with the campaign.

OUTCOME EVALUATION: ESTIMATING MEASLES VACCINATION COVERAGE

WHO-AFRO recommends two approaches to estimate measles campaign coverage:

- Administrative estimate based on campaign field reports
- Conventional coverage surveys

A. Estimating coverage through administrative field reports (during and following campaigns)

Using district summary reports compiled from tally sheets filled by each vaccination team, program managers can estimate vaccination coverage by comparing the number of doses given during the campaign as numerator versus the known target based on the data from the micro-planning workshops or from the last known census figures. The formula for calculating coverage is:

$100 \times \frac{\text{Number children in target-age immunized in District X}}{\text{Total number of children in target-age group in District X}} = \dots\dots\dots\%$

Program managers can plot the daily cumulative number of reached children and the percent coverage for each district on a graph as shown in figure 2:

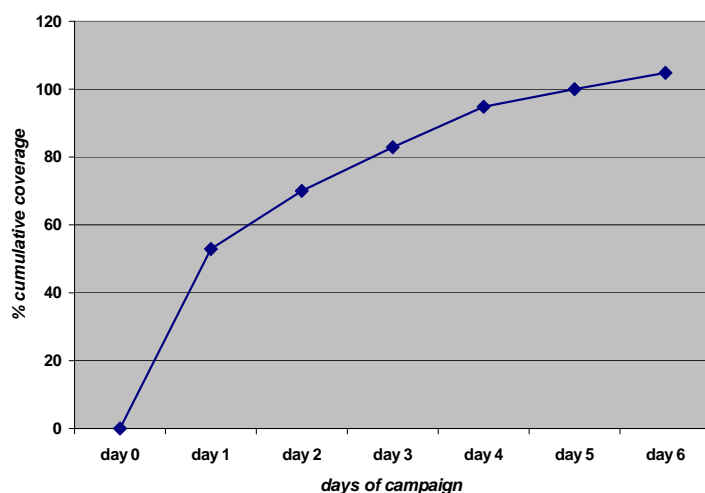


Figure 2. Daily cumulative charting of administrative coverage.

Such a graphic presentation helps to determine if there are problems with the expected turnout of eligible population, and to figure out any possible modification in resource allocation, social mobilization or strategies used by the teams in the area.

Once the campaign is over, the summary of the administrative coverage data from each district should be analyzed and categorized as follows and can be charted as in the example shown in figure 3.

- Good performance: coverage of 95% or above
- Satisfactory performance: coverage of 90 – 94%
- Poor performance: coverage below 90%

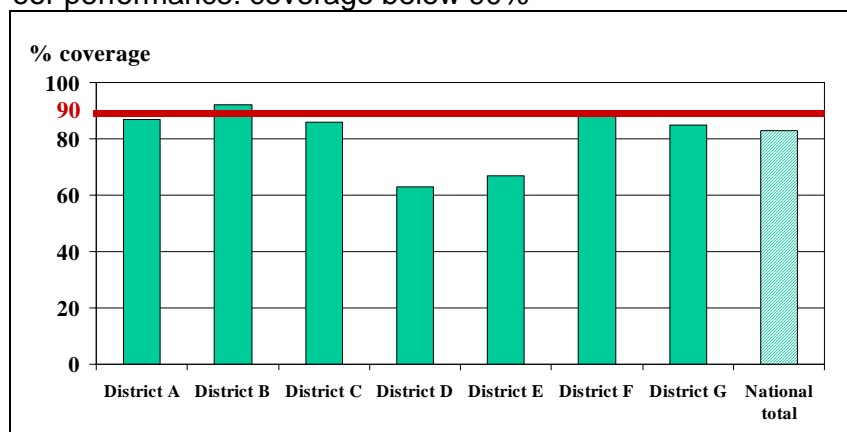


Figure 3. Sample chart showing the administrative coverage summary by district and National level.

Program managers should use this information as one criterion for determining weak districts or areas, and investigate or organize mop-up activities.

There are drawbacks in using coverage as determined by the administrative method. Frequently, official statistics lack accurate or up to date information on population figures particularly for the very hard to reach areas. As mentioned above, inaccurate denominator data can generate unrealistic coverage rates (e.g., 130% coverage). It is therefore best to use other approaches to verify administrative coverage results.

B. Estimating coverage through conventional household survey

Within one month of the campaign, an independent team not closely linked with the campaign managers should conduct a coverage survey to validate the administrative coverage estimates.

An immunization coverage survey is a survey of small numbers of individuals to determine their immunization status. It entails visiting homes and requesting about or verifying immunization status. This is done in a systematic way so that only a small sample of homes needs to be surveyed in order to obtain valid results for a larger population. The coverage survey will tell you about infant immunization and the immunization of eligibles during the campaign, as well as reasons for immunization failure.

The recommended survey method is a **cluster sampling technique**. This technique allows a small number of the target population to be sampled while providing data which are statistically valid. A "cluster" is a randomly-selected group which in this case

contains at least 7 children in the age group you want to evaluate. A coverage survey contains 30 clusters and meets the following standards of reliability:

- The results of the survey will have a level of accuracy of within plus or minus 10%. (For example, if the survey shows an immunization coverage of 70% in the sample, the coverage in the target population will be between 60% and 80%)
- The level of confidence is 95%, which means that nineteen out of twenty times the data which results from the survey will be within the stated level of accuracy (i.e., plus or minus 10%).

A survey using this cluster sampling technique will only allow you to draw conclusions about the population surveyed as a whole. It will not permit comparisons among different clusters or subsections of the total population surveyed. If you want to compare, for example, urban with rural populations, or sections of the population using one immunization strategy with other sections using a different strategy, you would have to do separate surveys in each section. If you want to compare coverage in populations in different parts of the country, you would do separate surveys in each part of the country.

A survey using the cluster sampling technique will only allow you to draw conclusions about the population surveyed as a whole.

The number of interviewers and the number of days needed to conduct an immunization coverage survey will vary. Considerations include the availability of personnel and transport, the time required to travel to the clusters, and how urgently the data on immunization coverage is needed. In general, however, it is recommended that:

- Each interview team be composed of two members, so that interviewers can check each other's work and make sure information is recorded accurately and completely.
- One team of interviewers be expected to complete one cluster each day.
- The entire survey of 30 clusters should be completed within 1 month, to ensure that the data are as uniform as possible.
- The survey should be done by people who did not do the immunization.

Sampling procedures

To identify clusters, the coordinating team must know the total population of the area to be surveyed and the population of the cities, towns and villages in the area. A sampling interval (a whole number) is used to systematically select clusters.

Calculate a sampling interval by using the formula:
$$\frac{\text{Total population to be surveyed}}{30 \text{ clusters}} = \text{Sampling interval}$$

To identify clusters, you will need to select a random number (e.g., by using the last digits of the serial number on currency notes, or from a table of random numbers). To find a random number using a currency note, first refer to your sampling interval. The random number must have the same number of digits as the sampling interval. For example, if the sampling interval is 345, then the random number must have 3 digits. If

the random number you find from the currency note has a value that is greater than the sampling interval, you will need to use another note to identify another number.

Once the clusters are identified, the first house to be visited in each cluster should be also selected at random. The method for selecting the first house will vary according to the population density (rural versus urban areas) and whether household lists are available. Further details regarding the sampling process are available in the WHO Manual; *EPI coverage survey- WHO/EPI/MLM/91.10*.

The process you will use to select subsequent houses, after you have selected a starting household, depends on whether the houses are "single-family dwellings" or "multi-family dwellings". In single-family dwellings, the second household you should visit will be the one which is nearest (the one whose front door is closest to the front door of the household you have just visited) to the first.

In densely populated urban areas where more than one family live in a single dwelling, a more complicated method for selecting the first household is used. A household is defined as a group of people sharing the same kitchen, and you may find many households in a single building in urban areas. To ensure an unbiased selection of households in buildings such as apartment buildings, use the following system.

First, choose one floor at random. Then number the households on the selected floor and randomly select the first household to visit. The second household to visit is the door nearest to the first. After you have visited all the households on the floor, randomly choose a direction (that is, up or down). Visit all the households on that floor. Continue from floor to floor visiting the next nearest floor which has not been visited previously. After the whole building has been visited, go to the nearest door of the nearest building and repeat the process.

A household is defined as a group of people sharing the same kitchen.

Interview and recording of survey information

Once the selected household is identified, the interviewer should:

- Ask to see the head of the household, the spouse, another adult or a mature child.
- Explain the reasons for the visit and ask the ages of the children living in the household.
- Determine if there are any children in the household within the age range eligible for immunization during the campaign.
- Record the immunization status of every child that is in the cluster. If the eligible child had not been immunized during the campaign, ask the responsible person to give the most important reason why the child did not receive all the immunizations in the series, and record the answer on the survey form.

Further details on the cluster survey methodology can be found in the module "EPI coverage survey- WHO/EPI/MLM/91.10"

IMPACT EVALUATION ; CASE-BASED MEASLES SURVEILLANCE

Impact of the campaign on measles morbidity and mortality should be measured through ongoing measles surveillance, built on the AFP surveillance model, and integrated into the national surveillance system (e.g., through integrated disease surveillance or IDS). WHO/AFRO recommends starting or strengthening case-based measles surveillance nationwide immediately following campaigns. Provincial-level AFP active surveillance focal persons funded by WHO can help train, implement and supervise routine case-based measles reporting and outbreak investigation.

The epidemiological case definition of a reportable suspected case of measles used for surveillance purposes in the African Region is as follows.

Any person with fever and generalized maculopapular rash AND one of the following: cough or red eyes or runny nose
OR
Any person in whom a clinician suspects measles

To monitor measles incidence and assess campaign impact effectively, health staff should record at least the following on all children with suspected measles reported by facilities through the surveillance system: age, vaccination status, geographic location, and a time variable (date of onset of rash and the date of report). Data on aggregate numbers of measles cases or from sentinel surveillance are inadequate. Blood specimens should be collected for laboratory confirmation.

WHO/AFRO recommends that countries use or adapt the Integrated Disease Surveillance (IDS) generic case form (see Annex 8) and the IDS generic line list to record vital epidemiologic information (like age and vaccination status) on all routinely reported measles cases and during all outbreak investigations.

To assist with data analysis and program management, EPI and surveillance managers can plot the number of reported cases by age group and by year, and monitor measles trends. For purposes of determining impact, rates of confirmed measles cases can be calculated per unit population and compared over time or by province. These figures would make more sense when compared against changes in the routine vaccination coverage and coverage during measles SIAs.

For purposes of determining the quality of measles case-based surveillance, WHO/AFRO suggests the use of the standard performance indicators in the table below.

	Indicators of quality of measles surveillance	Target
1	Proportion of reported suspected measles cases from whom blood specimens have been collected (excluding epidemiologically linked cases from the denominator)*	>/=80%
2	Proportion of districts that have reported at least 2 suspected cases of measles ¹ with a blood specimen per year*	>/=80%
3	Annualized rate of investigation (with blood specimens) of suspected measles cases	>2.0 per 100,000 population
4	Proportion of measles outbreaks investigated with blood specimens from the first five cases	>/=80%
5	Proportion of suspected measles case investigated within 3 days following notification	>/=80%
6	Proportion of serum/ dried blood specimens arriving at lab within 3 days of being taken	>/=80%
7	Proportion of laboratory confirmed measles cases	<10%
8	Proportion of feedback of serology results sent from the laboratory to the national level within 7 days of receipt of specimens at the lab**	>/=80%
9	Proportion of serum specimens arriving at the National measles laboratory in good condition**	>90%
10	Proportion of representative ² serum specimens sent quarterly by the national laboratories to the regional reference labs for re-confirmation as part of quality assurance measures**	>10%
11	Proportion of concordance of measles IgM results between the national measles lab and the regional reference lab**	>90%

*Main surveillance performance indicators

** Measles laboratory performance indicators

Measles Outbreak Investigation

Following a campaign with high coverage achieved, the set threshold should be used in order to detect any clustering of cases in time and place.

A single confirmed case may represent an outbreak in a country aiming to eliminate measles. However, the outbreak threshold that WHO AFRO promotes for use by countries in the phase of accelerated measles control is as follows:

A suspected outbreak of measles: the occurrence of 5 or more reported suspected cases of measles in a health facility or district in one month.

A confirmed outbreak of measles is defined as 3 or more measles IgM positive (laboratory confirmed) cases in a health facility or district in one month.

This confirmation should trigger appropriate responses including continued efforts in case finding and line listing, improving the case management, strengthening of the

¹ For districts with population sizes less than 100,000 the indicator will be “at least 1 suspected case of measles with a blood specimen per year”.

² Representative samples consisting of 10% random sample of measles IgM positive, negative and indeterminate specimens need to be shared with the RRL every quarter.

overall surveillance system, and reinforcing immunization activities in surrounding districts. Outbreak response immunization may be justified only in enclosed communities like in schools, refugee camps, barracks, etc.

The district team should lead the investigation and record the results on a form similar to the WHO/AFRO IDS outbreak investigation form and line lists (see Annex 9). They should forward the forms to the national level for analysis and interpretation. National experts with more technical expertise may need to conduct a follow-up investigation in some cases.

For details on the standards and tools used for measles case based surveillance, please refer to the *WHO AFRO Regional Measles Surveillance Guidelines (revised Dec 2004)*.

REFERENCES

1. WHO AFRO Measles SIAs Field Guidelines. Revised January 2006.
2. WHO AFRO Measles Technical Advisory Group Recommendations. April 2005.
3. Centers for Disease Control and Prevention, National Immunization Program, Global Immunization Division, Global Measles Branch, "Suggested Observation Guidelines for CDC Staff Serving as Monitors of Mass Measles Campaigns in AFRO Countries, 2001-2002," Atlanta, draft of November 21, 2001.
4. WHO, UNICEF, USAID (BASICS and CHANGE Project), *Communication for Polio Eradication and Routine Immunization - Checklists and Easy Reference Guides*, February 2002.
5. EPI coverage survey- WHO/EPI/MLM/91.10
6. WHO AFRO Measles Surveillance Guidelines. Revised Dec 2004.

ANNEX I:

Suggested measles pre-campaign supervisory checklist:

Date of visit:	Observer:	
Region:	District:	
Clinic:	Clinic Coordinator:	
	Yes/ No	Comments
Planning and Coordination		
Microplans developed and complete?		
High-risk areas & populations identified? Special strategies defined?		
Mechanisms for effective partner/inter-sectoral coordination in place?		
Coordinating committees organised?		
Campaign guidelines in place?		
All required funds available?		
Supervisory structure in place?		
Enough vaccinators allocated to posts so that no vaccinator must inject >200 children/ day?		
Social Mobilisation		
Social mobilization committee functions?		
High-level advocacy given for the campaign?		
Effective mobilization strategies in place to generate demand?		
Community members know the campaign dates and targets?		
Logistics and Supplies		
Measles & OPV vaccine, diluent distributed?		
Vitamin A distributed?		
Health workers & volunteers trained?		
Adequate transport organized?		
Adequate cold chain supplies in place?		
Adequate copies tally sheets, forms?		
Injection Safety and AEFI		
Health workers understand how to use and dispose of AD syringes?		
Adequate supplies of safety boxes?		
AEFI procedures understood and reporting forms in place?		
Waste Management Practices		
Procedures in place for disposal of used needles, syringes and other wastes?		

Other observations:

ANNEX II:

Indicators and Sources of Data for Assessing Vaccination Post Performance During Measles Campaigns

OBJECTIVES: To assess the management and service delivery practices of staff at vaccination posts especially in relation to:

- Social mobilization
- Cold chain efficacy
- Availability of vaccines and supplies
- Post organization
- Immunization safety practices
- Waste management practices

INDICATORS	SOURCES OF DATA
<p>Social Mobilization and Service delivery point:</p> <ol style="list-style-type: none">1. Proportion of posts in which the catchment population is aware of the campaign dates, purpose and post location.2. Proportion of posts that are clearly identified by banners or other means.3. Proportion of posts in which health workers or volunteers actively search for unvaccinated persons, and direct them to posts for vaccination.4. Proportion of posts in which parents are informed that routine vaccinations should continue.	<p>Social Mobilization and Patient Service:</p> <ul style="list-style-type: none">• Health worker responses.• Observation of practices at post.• Convenience sample of 5-10 caretakers in the surrounding community.
<p>Cold Chain:</p> <ol style="list-style-type: none">1. Proportion of posts with vaccines stored in vaccine carrier with at least 2 frozen ice packs.2. Proportion of refrigerators with temperatures between 2-8°C and an up-to-date temperature monitoring form.3. Proportion of posts in which diluent is cooled before reconstitution.4. Proportion of posts discard reconstituted vaccine after 6 hours.	<p>Cold Chain:</p> <ul style="list-style-type: none">• Reading of thermometer inside the refrigerator and/or vaccine carrier in use at post.• Observation of vaccinator practices.• Review of temperature monitoring records.

INDICATORS	SOURCES OF DATA
<p>Availability of vaccines and supplies:</p> <ol style="list-style-type: none"> 1. Proportion of posts with adequate supplies of vaccine and diluent on hand given projected demand. 2. Proportion of posts with available measles vaccines bundled with enough reconstitution and AD syringes. 3. Proportion of posts with adequate quantities of cold boxes. 4. Proportion of posts with adequate quantities of safety boxes. 	<p>Availability of vaccines and supplies:</p> <ul style="list-style-type: none"> • Count of vials of measles vaccines, reconstitution syringes and AD syringes available at post. • Count of cold boxes at post. • Count of safety boxes at post. • Health worker responses to questions.
<p>Post organization:</p> <ol style="list-style-type: none"> 1. Proportion of posts with ordered flow of clients (screening => service delivery => recording => counseling=>exit). 2. Proportion of posts with adequate numbers of vaccinators and volunteers. 3. Proportion of posts in which every child is tallied. 4. Proportion of posts in which staff calculated coverage progress daily. 	<p>Post organization:</p> <ul style="list-style-type: none"> • Observation of client flow at post. • Compare number of vaccinators and volunteers present with projected daily numbers of children to be vaccinated. • Observation of tallying at post. • Health worker responses to questions about coverage monitoring.
<p>Immunization Safety Practices:</p> <ol style="list-style-type: none"> 1. Proportion of posts in which injection techniques conform to national guidelines. 2. Proportion of posts in which vaccinators insert used syringes into safety boxes without recapping. 3. Proportion of posts that monitor and report AEFI according to national guidelines, including zero reports, and have reporting forms in place. 	<p>Injection Safety practices:</p> <ul style="list-style-type: none"> • Observation of practices at post. • Review of tally sheets. • Responses to questions about AEFI reporting procedures. • Review of AEFI reports.
<p>Waste Management Practices:</p> <ol style="list-style-type: none"> 1. Proportion of posts that ensure incineration of safety boxes locally or at another facility. 	<p>Waste Management Practices:</p> <ul style="list-style-type: none"> • Observation of practices at post.

ANNEX III:

Supervisor's Checklist for assessing quality & safety at measles campaign vaccination posts

Date of visit:	Observer:	
Region:	District:	
Vaccination Post:	Post Coordinator:	
	Yes/ No	Comments
Social Mobilization and interaction at Service delivery point		
Population aware of campaign dates, purpose and post locations?		
Hard-to-reach populations/areas identified and targeted for special strategies?		
Post clearly identified by banner or other means?		
Health workers/volunteers actively searching for unvaccinated children, and directing them to vaccination post?		
Health workers explain to caretakers about the vaccine, possible side effects?		
Parents informed that routine immunization should continue?		
Cold Chain and vaccine handling		
Vaccines stored in vaccine carriers with at least 2 frozen ice packs?		
Refrigerator temperature is 2-8°C with up-to-date temperature monitoring form?		
Diluent cooled before reconstituting the vaccine?		
Reconstituted vaccine discarded after 6 hours?		
Availability of Vaccines & Supplies		
Sufficient measles vaccine and diluent?		
Vaccines bundled with enough reconstitution and AD syringes?		
Are there any vaccine vials with VVM at discard point?		
Enough cold boxes?		
Enough safety boxes?		
Enough tally sheets?		
Post Organization		
Post well organized, with good client flow?		
Sufficient vaccinators and volunteers?		
Every child vaccinated is tallied?		
Coverage estimated daily? Action taken if coverage low?		
Immunization Safety Practices		
Measles injection given correctly? (0.5 ml SC)		
Used syringes inserted into safety boxes without recapping?		
AEFI reporting procedures applied, reporting forms in place?		
Waste Management Practices		
Filled safety boxes are incinerated/ disposed of properly?		
Recording and use of data		
Are health workers tallying every child vaccinated?		
Does post staff calculate coverage daily?		
Does post staff increase efforts to mobilize the population if coverage appears low?		

Other observations:

ANNEX IV:

Guidelines for Supervisors and Observers to Assess Measles Vaccination Posts Effectively

1. Diversify posts visited:

Ensure that supervisors and observers cover a variety of posts: urban and rural, and those serving high-risk populations (e.g., those with low vaccination coverage, misconceptions about immunization, poor access to health services, areas with recent outbreaks, etc.). Focus on challenging areas, rather than ones close to main towns and easily accessible.

2. Write observations:

Develop and use a one-page checklist and record observations (see Annex 4). Avoid just checking “Yes” or “No;” explain key observations briefly.

3. Be flexible:

Do not be limited by the items on a checklist. Observe and record other things not listed that may be important to note for the evaluation.

4. Be discreet:

Complete the checklist discreetly—perhaps immediately after a visit—to avoid disrupting services or intimidating staff. Use the approach of “supportive supervision.”

5. Find the unvaccinated:

Make sure vaccination teams and volunteers are tracking unvaccinated children, especially in high-risk areas. Randomly visit homes to verify if there are any unvaccinated children.

6. Motivate:

Congratulate staff for work well done.

7. Correct errors:

If you observe errors, notify a national counterpart to help correct the problem. Address dangerous practices immediately but diplomatically. Write detailed comments on the observation tool, especially for problems observed.

ANNEX VI:

Recommended Qualitative Survey Questions

(NOTE: these questionnaires can be linked to visits for the household coverage survey, or can be used during post-campaign review meetings.)

Questions for health facility staff / district health team:

1. Social mobilization:
 - a. What social mobilization activities were carried out in your area?
 - b. Which methods did you find most effective?
 - c. Did volunteers work in immunization posts? What did they do?
 - d. What training did you receive for the campaign? What was most and least useful?
2. Supplies
 - a. Were there sufficient supplies of vaccines, diluent, AD and reconstitution syringes, safety boxes, cold boxes, ice packs, first aid kits, cotton balls?
 - b. Was staffing adequate at vaccination posts?
3. Injection Safety
 - a. Did your supervisor visit you during the campaign? If so, how often? What did he/she do?
 - b. Did you report an adverse event? If so, describe. If not, how would you have responded to an adverse event?
 - c. Did you receive any supplies for managing adverse events? If so, what and when?
 - d. How did you dispose of safety boxes?
4. Impact on Routine services
 - a. Did you stop or reduce routine health services provided at your facility during the campaign? If yes, explain.
 - b. What impact has the campaign had on your routine vaccination program to date? Describe any long-term benefits and/or problems.
5. Coverage
 - a. How did you calculate coverage rates?
 - b. What did your staff do to identify any children missed in your area?
 - c. Did you conduct any rapid convenience surveys? Where and what was the actions that followed the findings?

For Health Officials, ICC Member Organizations, Community Leaders:

1. National coordination
 - a. Did the ICC or campaign coordination committee function effectively? (See the most recent report or minutes.)
2. Planning
 - a. How was micro-planning organized at the national, regional and local levels?
 - b. How were vaccination posts allocated (e.g., by population? By geography?)
 - c. Were logistics planning sheets prepared by managers?

-
3. Social mobilization:
 - a. Did social mobilization plans and guidelines exist for health workers and volunteers at all levels?
 - b. Was the role of NGOs, Red Cross/Red Crescent volunteers, and other partners clearly defined in the areas in which they served?
 - c. Were hard-to-reach populations identified and targeted for special strategies?
 4. Funding
 - a. Did funds for operational activities arrive on time?
 5. Training
 - a. Was training sessions conducted as scheduled, and if so, when?
 - b. Who was trained (e.g., supervisors, health care workers, volunteers, others)?
 - c. Were technical guidelines developed and distributed as part of training?
 - d. Did training materials cover all key components of the campaign?
 6. Supervision
 - a. Did a supervisory plan exist for each level?
 - b. Did supervisors use checklists for monitoring vaccination posts?
 - c. Did supervisors search for unvaccinated children and distribute extra supplies to posts?
 7. Staffing
 - a. Who made up a vaccination team, and what are team members' functions?
 - b. What was the recommended ratio of vaccinators to number of children to be vaccinated each day per post, and was this followed in the field?
 8. Immunization safety
 - a. Did national guidelines exist on injection safety, including use and incineration of A-D syringes?
 - b. Were national guidelines established for identifying, managing and reporting AEFI?

ANNEX VII:

Recommended Measles SIAs Technical Report Outline

(To be completed by the National EPI Manager and Submitted to UNICEF & WHO within 5 weeks after the campaign.)

Among other details, the final technical report should include the following elements:

- Dates of the SIAs
- Target population (No. and type: Nationwide or partial and Age Group)
- Overall Campaign administrative coverage⁴
- Number of immunization posts⁵
- Number of vaccination teams, and supervisory teams
- Number of health workers and volunteers who participated in the SIAs
- Results of other integrated child survival Interventions
- Experience regarding pre-campaign and campaign monitoring
- Comments on vaccine quality, injection safety and any AEFIs observed or reported
- Comments on the experience with injection safety and Immunization waste management
- Estimated vaccine wastage
- Some qualifying comments about high-level political commitment
- Were any hard-to reach children immunized? Give details of the areas and characteristics of the populations. Explain strategies employed.
- Were SIAs used to improve measles surveillance? Explain
- Were SIAs used to improve routine immunization? Explain.
- Who were the major national/local partners
- Local resource mobilization (in cash and in kind)
- Resources utilization; cost/child immunized
- Mop up immunization planned or completed? Give details
- Coverage evaluation surveys planned/ completed? Briefly give details of methodology and results.
- Highlight major problems encountered
- Highlight major achievements
- Highlight major lessons learnt

⁴ Please attach relevant spreadsheets and maps of sub-national vaccination level coverage, if not already part of the report.

⁵ Please quote actual figures and not figures from micro-plans for this and subsequent rows requesting number of posts, teams and participants.

ANNEX VIII: Integrated Disease Surveillance Generic Case Investigation Form

Reporting Health Facility	Reporting District
Generic Reporting Form – from Health Facility to District Health Team	
<input type="checkbox"/> Cholera <input type="checkbox"/> Diarrhoea with Blood/Shigella <input type="checkbox"/> Dracunculiasis <input type="checkbox"/> Neonatal Tetanus <input type="checkbox"/> Measles <input type="checkbox"/> Meningitis <input type="checkbox"/> Plague <input type="checkbox"/> Viral Hemorrhagic Fever <input type="checkbox"/> Yellow Fever _____ Other	
_____/_____/_____ Received form at national level	
Name(s) of Patient: _____ Date of Birth: ____/____/____ Age: _____ years months days <small>(If DOB unknown) (If <12 months) (NNT only)</small>	
Patient's Residence: Village/Neighbourhood _____ Sex: <input type="checkbox"/> M=Male F=Female _____ District of residence: _____ Town/City: _____ _____ Urban/Rural: <input type="checkbox"/> U=Urban <input type="checkbox"/> R=rural	
Locating Information: _____	
<small>If applicable, name of mother and father if neonate or child</small>	
Date Seen at Health Facility: ____/____/____ Date Health Facility Notified District: ____/____/____	Number of vaccine doses received <input type="checkbox"/> 9=unknown <small>For Measles, TT, YF- documented by card. For Meningitis, by history.</small>
Dates of Onset⁶: ____/____/____ <small>(Measles, Neonatal Tetanus (TT in mother), Yellow Fever, and Meningitis only)</small>	Date of last vaccination: ____/____/____
Blank variable #1 _____ Blank variable #2 _____	In/Out patient : <input type="checkbox"/> 1=In-patient <input type="checkbox"/> 2=Out-patient Outcome <input type="checkbox"/> 1=Alive <input type="checkbox"/> 2=Dead <input type="checkbox"/> 9=unknown
	Final Classification⁸: <input type="checkbox"/> 1=Confirmed by lab (IgM positive) 2= Confirmed by epidemiologic link 3= Compatible/ Clinical 4= Discarded by lab (IgM negative) 5= Suspected with lab results pending
Person Completing Form Name: _____ Signature: _____	Date Sent Form to District: ____/____/____

⁶ Date of onset of rash for cases suspected of measles

⁷ Blank variables: These variable entry spaces may be used to insert any epidemiologic variable deemed necessary at country level.

⁸ Final Classification: Specific for measles case based surveillance.

IDS GENERIC CASE INVESTIGATION FORM (reverse side of form)

If Lab Specimen Collected

For Health Facility: If lab specimen is collected, complete the following information. And send a copy of this form to the lab with the specimen.

Date of specimen collection: ____/____/____ **Specimen source (Circle):** Stool Blood CSF Other:_____

Date Specimen sent to lab: ____/____/____

For the Lab: Complete this section and return the form to district team and clinician

Date lab received specimen: ____/____/____ **Specimen condition (Circle):** Adequate Not adequate

Disease/ Condition	Type of test	Results (P=pending)	Disease / Condition	Type of test	Results*	
Cholera	Culture	+ - P	Yellow Fever	IgM	+ - P I	
	Direct Exam	+ - P	Measles	IgM	+ - P I	
Meningitis		Exam Method used for Direct	Rubella	IgM	+ - P I	Virus Detection
N. meningitidis	Culture	+ - P	RVF	IgM	+ - P	+ - P
S. pneumonia	Culture	+ - P	Ebola	IgM	+ - P	+ - P
H. influenza	Culture	+ - P	CCHF	IgM	+ - P	+ - P
N. meningitidis	Latex	+ - P	Lassa	IgM	+ - P	+ - P
S. pneumonia	Latex	+ - P	Marburg	IgM	+ - P	+ - P
H. influenza	Latex	+ - P				
Shigella Dysenteriae	Culture	SD type 1 Other shig No shig				
Plague	Culture	+ - P				
	IFA>1: 64	+ - P				

Other lab results: _____

Date lab sent results to district: ____/____/____

Name of lab sending results: _____

Other pending tests: _____

Date district received lab results: ____/____/____

Date lab results sent to clinician by district: ____/____/____

NOTE: District is responsible for ensuring lab results get to clinicians. Failure to do so will undermine cooperation with clinicians on reporting of cases in the future

- * + Positive
- Negative
- P Pending
- I Indeterminate

ANNEX IX:

IDS DISTRICT OUTBREAK INVESTIGATION REPORT FORMAT

Title/Description (include disease/condition investigated)

Period

Place (Villages, Neighborhoods, District, Province)

Executive summary:

Introduction:

Background:

Reasons for investigation: (public health significance, threshold met, etc.)

Investigation and outbreak preparedness:

Methods:

Dates of investigation:

Site(s) of investigation (health care facilities, villages, other):

Case finding (indicate what was done regarding case finding, e.g., register review, contact investigation, alerting other health facilities, other)

Lab specimens collected:

Describe response and intervention (include dates):

Results:

Date and location of first known (index) case:

Date and health facility of first case
seen by the health care system

Results of additional case finding:

Lab analysis and results:

With text, describe key features of results of time, place, and person analysis
For detailed results by time (epi curve), place (map), and person characteristics (table) and line lists.

Results of response and evidence of impact.

IDS DISTRICT OUTBREAK INVESTIGATION REPORT FORMAT (page 2)

Self-evaluation of the timeliness and quality of preparedness, outbreak detection, investigation, and response

Epidemic Preparedness

- Adequate drugs and medical supplies available at the onset of the outbreak _____

Yes	No
-----	----
- Treatment protocols available to health workers? _____

Yes	No
-----	----
- District epidemic management committee regularly meet as part of epidemic preparedness ? _____

Yes	No
-----	----

Outbreak detection:

- Interval between onset of index case (or occurrence of an usual cluster at the community level) [date 1] to arrival of first outbreak case at the health facility [date 2] (Target: <3 days): _____

Date 1	Date 2	Interval
--------	--------	----------
- Interval between initial outbreak case seen at the health facility (or date of outbreak threshold crossing at the health facility) [date 1] and reporting to the district health team [date 2] (Target: within 24 hours): _____

Date 1	Date 2	Interval
--------	--------	----------
- Cumulative interval between onset of index case (or occurrence of an usual cluster at the community or health facility) [date 1] to notification to the district [date 2] (Target: <7 days): _____

Date 1	Date 2	Interval
--------	--------	----------

Outbreak investigation:

- Case forms/line listed completed? Yes No
- Laboratory specimens taken (if required)? Yes No
- Interval between notification of district [date 1] and district field investigation conducted [date 2] (Target: within 48 hours) _____

Date 1	Date 2	Interval
--------	--------	----------
- Interval between sending specimens to the lab [date 1] and receipt of results by the district [date 2] (Target: 3-7 days, depending on type of test) _____

Date 1	Date 2	Interval
--------	--------	----------

Outbreak response:

- Interval between notification of outbreak to district [date 1] and concrete response by the district [date 2] (Target: within 48 hours of notification) _____

Date 1	Date 2	Interval
--------	--------	----------

Evaluation and Feedback:

- Interval between end of the outbreak [date 1] and finalization of outbreak report with case forms/line list sent to national level [date 2] (Target: 2 weeks) _____

Date 1	Date 2	Interval
--------	--------	----------
- Outbreak management committee met? Yes No
- Feedback given to health facilities and community? Yes No _____

Method of feedback used

Other aspects, evaluation:

Interpretations, discussion, and conclusions:

Recommended public health actions: Comment on following levels: community, health facility, district, partners, provincial, and national

District Epidemic Committee Chairperson: _____ _____

Name	Signature
------	-----------

District Medical Officer: _____ _____

Name	Signature
------	-----------

Date reported completed: _____