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REACH
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HEALTH

**TECHNICAL ASSISTANCE TO KEPI
FOR MONITORING AND DISEASE
SURVEILLANCE WORKSHOPS
TRAINING OF TRAINERS AND
TRAINING FOR PHMT MEMBERS**

Mombasa, Kenya

May 7-22, 1992



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**TECHNICAL ASSISTANCE TO KEPI FOR MONITORING
AND DISEASE SURVEILLANCE WORKSHOPS
TRAINING OF TRAINERS AND TRAINING FOR PHMT MEMBERS**

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LIST OF ACRONYMS

CEIS	Computerized Information System
DHMT	District Health Management Team
EPI	Expanded Program on Immunization
HIS	Health Information System
KEPI	Kenya Expanded Program on Immunization
MOH	Ministry of Health
MTC	Medical Training Centers
MU	Management Unit
NNT	Neonatal Tetanus
PHMT	Provincial Health Management Team
PMO	Provincial Medical Officer
REACH	Resources for Child Health Project
RHTU	Rural Health Training Unit
UNICEF	United Nations International Children's Emergency Fund

EXECUTIVE SUMMARY

The Kenya Expanded Programme on Immunization (KEPI) Plan of Operation for 1992 includes a series of workshops intended to improve the collection, analysis and use of immunization coverage and disease surveillance data by District Health Management Teams (DHMTs). KEPI's schedule for these workshops included: 1) An initial training of trainers course (with prospective trainers to be selected from the Medical Training Centers (MTC) and Rural Health Training Units (RHTU) in each province) 2) A training for Provincial Health Management Teams (PHMT) facilitated by trainers from the MTCs and RHTUs 3) Formation of provincial training teams composed of the PHMT staff and MTC and RHTU trainers who would then train DHMTs within their province.

The KEPI Manager and Data Management Officer requested technical assistance from REACH in designing the workshop agendas, preparing training materials and in facilitating the Training of Trainers and the PHMT-level workshops. A REACH technical officer visited Kenya from May 7 - May 22, 1992 to assist in conducting these two workshops that took place between May 11 - May 15 and between May 18 - May 22 respectively.

KEY FINDINGS

1. Health facilities generally have a good supply of the forms required to report immunization and disease surveillance data and the staff have a good understanding of the reporting requirements. Health facility staff, however, generally do not use these data to track coverage indicators or identify disease trends.
2. Staff from the RHTUs and MTCs selected to train province and district health management teams were very motivated and interested in improving monitoring and disease surveillance at the district level. Much of the material and training methodologies were, however, new to most. Therefore, it is likely that the provincial training teams will require additional technical input from KEPI Management Unit (KEPI MU) staff in order to conduct the first one or two DHMT workshops in their respective provinces. They should be able to conduct subsequent DHMT workshops without additional assistance from the KEPI MU.
3. The workshop agenda and training materials developed by the KEPI Data Management Officer and REACH Technical Officer were found to be useful and relevant by participants attending both the training of trainers and the PHMT workshops. The technical content of the one day session on monitoring was found to be too lengthy and should be reduced. However, the agenda and training materials can be used for the DHMT workshops with relatively few modifications.
4. KEPI and the Ministry of Health (MOH) have not officially adopted reporting objectives for polio, measles and neonatal tetanus (NNT). These objectives must be finalized before required changes in the disease surveillance information system can be made and before provinces and districts can implement fully their plans of action to improve monitoring and disease surveillance. Officially adopting reporting objectives may take time as the KEPI manager acknowledged there is no effective mechanism for deciding and implementing KEPI related policies.
5. The MOH's Weekly Report of Communicable Diseases, could, if revised and reinstated, represent an effective method for immediately reporting communicable diseases with outbreak potential, including polio.

6. KEPI and the MOH have not distributed clear guidelines for identifying and responding to measles outbreaks. PHMT members requested that KEPI provide these guidelines as soon as possible.
7. The KEPI Manager and workshop participants believe that the polio incidence rate reported by HIS overestimates the true incidence of acute poliomyelitis in Kenya. They believe that a poor understanding of the polio case definition causes health staff to report both acute and non-acute cases of polio.
8. PHMTs require guidelines on the specific activities they are expected to include in their plan of action to improve disease surveillance and monitoring at the district level. In the absence of these guidelines, PHMT staff will have difficulty in identifying and including the specific activities required to meet coverage and disease surveillance objectives.
9. Health facilities generally are not able to monitor their immunization coverage because they do not know their catchment area boundaries and their target population. There is a lack of training and no clear guidelines to assist health facilities in determining this information.

KEY RECOMMENDATIONS

1. The KEPI MU plans to train province and district health management teams in monitoring and disease surveillance should proceed. The need for training in these skills was clearly identified by the district level assessment.
2. The KEPI MU should assist provincial training teams conduct the first one or two workshops for DHMTs. REACH should provide additional technical support to the KEPI MU and provincial training teams, if requested.
3. REACH should work with the KEPI Data Management Officer to finalize the workshop training materials that can be used by province training teams during the DHMT workshops. These materials should include detailed facilitator notes for each workshop session.
4. The KEPI Manager should ensure that reporting objectives for polio, NNT and measles are adopted by the MOH. A recommended response to reported cases of polio and NNT and to reported outbreaks of measles should also be adopted. These objectives should be communicated to province, district and health center staff through the appropriate policy-making channels. The KEPI Manager should also inform the appropriate MOH and HIS staff of the changes to the disease surveillance reporting forms and protocols that are required to meet the reporting objectives.
5. The MOH, HIS and KEPI should revise the Weekly Notifiable Disease Report form to include only those diseases with epidemic potential for which the MOH has established guidelines for a response. At a minimum, this list might include, cholera, meningitis and polio. This weekly report could then serve as the primary component of an immediate reporting system for polio cases, required for polio eradication.
6. REACH should assist KEPI, through the Measles Initiative, to develop an operational definition for a measles outbreak, tools for identifying measles outbreaks, and guidelines for responding to reported measles outbreaks.

7. KEPI should complete a retrospective review of polio cases reported in 1991 to determine the proportion of acute flaccid paralysis cases among all reported cases in Kenya. KEPI should also complete a more general review of the incidence of acute flaccid paralysis in Kenya and use these data to plan appropriate polio reporting and control activities.
8. KEPI should provide PHMTs with guidelines for specific activities to include in their plans of action to improve immunization coverage and the collection, analysis and use of coverage and disease surveillance data. At a minimum, the guidelines should include activities to:
 - Train DHMTs in monitoring and disease surveillance skills
 - Establish province and district objectives for timely and complete reporting of immunization and disease surveillance data
 - Develop and implement tools to routinely monitor the timeliness and completeness of reporting at the province, district, and health facility level
 - Establish a schedule for and the content of routine feedback from the provinces to districts and from districts to health facilities
 - Use monthly monitoring charts to routinely monitor key immunization coverage indicators.
 - Identify high risk districts for measles, NNT and polio.
9. The KEPI Management Unit should develop guidelines that health facilities can use to determine their catchment area and target population. DHMTs should be trained to use these guidelines during the monitoring and disease surveillance workshops and then provide similar training to health facilities.

BACKGROUND

The REACH Project has supported KEPI's efforts to improve the collection, analysis and use of immunization data since 1988. Much of the previous technical assistance has focused on working with the KEPI MU to make improvements at the national level. These efforts have included the installation of a computerized information system, CEIS, to facilitate the management and analysis of program data and assistance to the KEPI MU staff in identifying and using indicators to routinely monitor immunization coverage data. Support for the development of guidelines on the frequency and content of routine feedback to district staff has also been provided.

KEPI's 1992 work plan included a series of workshops designed to enhance the abilities of District Health Management Teams (DHMT) and health center staff to analyze and use coverage and disease surveillance information collected through the routine reporting system. Improving the routine reporting system and increasing the use of information at these lower levels is a necessary and key component of the KEPI MU's plan to control measles, polio and NNT.

The KEPI work plan included a three level approach to training district and health facility staff. During the first step, one staff person from the Medical Training Center (MTC) and the Rural Health Training Unit (RHTU) in each province would be trained during a one-week Training

of Trainers course. Next, one of the two staff persons from each province would be selected to serve as a facilitator during a one week training for PHMT members from all provinces. After this second workshop, PHMT members and the trainers from the MTC and RHTU in the province would form a province training team. The province training team would then conduct workshops for the DHMTs in the province.

KEPI requested technical assistance from REACH to develop an agenda and materials that could be used to train the trainers (from the MTCs and RHTUs), the PHMTs and the DHMTs. KEPI also requested technical assistance in facilitating the training of trainers and PHMT workshops. The training of trainers workshop was conducted from May 11 - 15, 1992 at the Golden Beach Hotel, Diani Beach. Training for the PHMTs took place in the same location from May 18 - May 22, 1992.

TRIP ACTIVITIES

Pre-workshop planning

From May 7 - May 9, the REACH Technical Officer and KEPI Data Management Officer reviewed the agenda and training materials developed for the workshop. Adequate copies of all workshop materials were prepared. Results of the KEPI District Level Needs Assessment (developed in January and completed in February, 1992) were also analyzed and the findings included in the workshop sessions.

Training of Trainers Workshop

From May 11 - 15, 1992 one staff member from the RHTU and MTC in each province participated in the training of trainers workshop. The agenda for this workshop appears as Annex 1. Facilitators for this training of trainers course included Ms. Jane Wanza, KEPI Data Management Officer; Mrs. Mary Mwangi, KEPI Training Officer; Dr. Sigei, HIS Director; Mr. Ngoto, HIS; Dr. Josephine Ojiambo, UNICEF/Nairobi; and Mr. David Boyd, REACH. Principle materials for the workshop included three modules from the WHO Mid-Level Managers Training Course; Disease Surveillance, Monitor Immunization Coverage, Increase Immunization Coverage and the Working Manual for District Health Management Teams developed by KEPI and REACH in October, 1991.

The REACH Technical Officer and KEPI Data Management Officer developed a detailed facilitator's guide which contained notes for each workshop session. The guide suggests to facilitators methods for presenting the workshop materials in an interactive way and instructs facilitators how to use the supplemental workshop handouts and exercises developed by REACH and KEPI during workshop sessions.

The general objective and expected outcomes for the workshop are listed below:

General Objective: To enhance the skills of participants in developing specific plans of action aimed at improving the current monitoring and disease surveillance systems, with special emphasis on controlling polio, measles and neonatal tetanus.

Expected Outcomes:

By the end of the workshop, participants will have:

- 1) Performed situation analysis and identified problems in achieving coverage and disease surveillance targets in their areas.

- 2) Examined approaches and tools that can be used to monitor and improve immunization coverage and to improve disease surveillance.
- 3) Listed the activities to be undertaken to solve the current problems in monitoring coverage and achieving coverage and disease surveillance targets.
- 4) Developed a plan of action for the implementation of these activities in their province.

The five day workshop included two days of classroom work, two days of practical field experience and one day for developing a province plan of action to increase immunization coverage and improve monitoring and disease surveillance. One day each of classroom and field work were devoted to disease surveillance and one day each to monitoring immunization coverage.

The field exercise for disease surveillance included a visit to a district hospital, a dispensary and a rural health clinic in the Mombasa/Diani Beach area. Workshop participants evaluated the routine system for reporting out-patient and in-patient morbidity data and the current use of disease surveillance data by health staff. They also identified changes in the routine system required to meet disease surveillance objectives for polio, neonatal tetanus and measles outlined at the measles control workshop in April, 1992.

During the second field visit for monitoring immunization coverage, participants formed three groups and visited either a health clinic, a rural dispensary or a town. Each group had the opportunity to practice with one of four different tools that could be used to identify the cause(s) of low immunization coverage in a health area. The tools included a provider interview questionnaire, a facility observation sheet, an exit interview sheet and a household survey questionnaire to identify reasons for immunization failure. The tools were originally developed for the Measles Initiative in Kenya and were revised slightly for this workshop. Participants were also trained to develop solutions specific to the cause(s) of low immunization coverage identified through the use of these tools.

On the last day of the workshop, participants developed a plan of action for improving immunization coverage and disease surveillance in their province. Workshops for DHMT staff were to be a fundamental component of each province's plan. Because the participants were trainers from the MTCs and RHTUs, and not active in the implementation of EPI, relatively less emphasis was placed on having them develop detailed plans of action. Participants were asked to include general activities to correct the two most important problems in increasing immunization coverage and improving disease surveillance in their province. The activities were to address these problems at the national, province, district, health center and community level. Plans developed during this workshop were to be used as a basis for more comprehensive plans of action to be developed by the PHMTs during their workshop.

Participants evaluated the workshop's interest, pace, usefulness and organization on a daily basis. A summary of the evaluations is shown below:

<u>Day</u>	<u>Interest</u>	<u>Pace</u>	<u>Usefulness</u>	<u>Organization</u>
Monday	4.3 of 5	3.2 of 5	4.7 of 5	4.1 of 5
Tuesday	3.8 of 4	2.8 of 4	3.9 of 4	3.6 of 4
Wednesday	3.3 of 4	3.3 of 4	3.6 of 4	2.8 of 4
Thursday	3.8 of 4	2.8 of 4	3.7 of 4	3.2 of 4

For pace, good or correct pace was represented by the mid-point (2.5 on Monday, 2 for the other days).

Training for Province Health Management Teams

From May 18 - 22, 1992, PHMT members were trained. All eight provinces sent at least two members of their PHMT and three provinces, Central, Nyanza and Western, sent their Provincial Medical Officer (PMO).

Seven participants from the training of trainers workshop were selected as facilitators for the PHMT workshop. They included, Shua Amboga, MTC, Kakamega; Rosemary Okeva, MTC, Homa Bay; Charles K'oduongo, MTC, Nakuru; David Gathi, MTC, Central; Joseph Mbogo, RHTC, Embu; Silvanus Karayu, RHTC, Coast. The trainer selected from Nairobi Province did not return. The REACH Technical Officer and KEPI Data Management Officer worked closely with each facilitator to assist them in preparing for their individual sessions during the week.

The agenda for the PHMT workshop is found in Annex 2. Originally, the workshop for PHMT members was designed to follow a similar agenda to that followed during the training of trainers workshop (as described in the previous section). The first day's schedule was slightly modified to allow the KEPI Manager to discuss disease surveillance policy issues with the PHMTs. The objectives for this workshop were the same as those listed for the training of trainers workshop.

Participants completed the first two days of the agenda on disease surveillance as scheduled. However, the three PMOs felt that the second day of field work (to provide training in the use of tools to identify causes of poor program performance and in developing appropriate solutions) was unnecessary because provincial staff were already well aware of the problems faced by districts in meeting coverage objectives. The workshop facilitators explained that the field exercise was intended to provide training in the use of standard tools to identify problems and appropriate solutions, rather than to actually identify a health area's specific problems.

Following this explanation, the PMOs still felt the field exercise was unnecessary and they requested that a group discussion of important issues faced by PHMTs in managing EPI be substituted. This was agreed to by the KEPI Manager and workshop facilitators. Consequently, the second field exercise was replaced by a half day discussion on three topics identified by the PMOs and a half day of advance preparation of the province plans of action. The plans were presented on the morning of May 22 and the workshop was rescheduled to close at 12:00 Friday.

The PHMT members were given guidelines for activities to include in their plan of action. The guidelines covered the need to train DHMTs in monitoring and disease surveillance skills and to develop a province strategy for improving immunization coverage and the routine disease surveillance reporting system. Detailed guidelines for the strategy to improve the routine disease surveillance reporting system were developed before the session by the KEPI Data Management Officer and REACH Technical Officer, using the WHO Document: "Guidelines for Improving Disease Surveillance" as a reference. The disease surveillance guidelines asked PHMT members to include in their plans activities to:

- Establish objectives for timely and complete reporting by health facilities and districts
- Design and implement tools to routinely monitor the timeliness and completeness of reporting at the province and district level

- Ensure that health centers, DHMTs and PHMTs routinely complete disease maps and monthly disease incidence charts for measles, polio and NNT

The KEPI Data Management Officer and REACH Technical Officer determined that the development of guidelines for improving the routine disease surveillance system was the highest priority for the plan of action session. Detailed guidelines for improving immunization coverage could not be completed in time for the session. Following the PHMT workshop, REACH and the KEPI MU will work to complete the development of guidelines for improving immunization coverage. The KEPI MU should forward the guidelines to the PHMTs and trainers for use during the DHMT workshops.

The guidelines to improve immunization coverage will recommend that provinces, districts and health centers use monthly monitoring charts to routinely monitor the set of coverage indicators discussed during the workshop (DPT1 coverage, measles coverage and the DPT1 -measles drop out rate). The guidelines will also ask districts and health facilities to identify the most important cause of poor program performance in their area and to develop appropriate solutions to these problems.

Last, the guidelines will ask each province to include in its plan of action a strategy to identify districts where the risk of measles, polio and NNT is highest. Identification of high risk districts is an important first step in implementing activities to increase coverage and achieve the disease control objectives for measles, polio and NNT. Furthermore, it will demonstrate an immediate use of disease surveillance data.

Suggested criteria for assessing the risk of measles in a district can be found in the WHO document "Plan of Action for Global Measles Control". The criteria are summarized below in question form:

- Does the district have a major urban area(s) with a dense population?
- Does the district have an under-served ethnic or minority group?
- Does the district have a large hospital which may serve as a focus for measles transmission?
- Does the district have a refugee population?
- Does the district have immunization coverage that is below the national average?
- Does the district have disease incidence rates that are above the national average?

It is likely that districts at high risk for measles may also be at high risk for polio and NNT. However, separate criteria for assessing the risk of neonatal tetanus can be found in the WHO draft document "A District Level Guide to Measure Progress in the Elimination of Neonatal Tetanus". The KEPI MU may wish to assist provinces in developing action plans to use the above mentioned criteria to identify high risk districts.

FINDINGS AND CONCLUSIONS

A. Analysis of Needs Assessment Survey

The analysis of the district-level data needs assessment survey, completed in February 1992, showed that, in general, health facilities and district offices have adequate supplies of the forms required to report immunization data (90% of districts report forms are always available). Districts are also aware of the established deadlines for completing and sending these forms to KEPI (74% of districts know to send monthly immunization report by the fifth of following month).

However, reporting of immunization data by health facilities to the district level is not complete, with 80% of districts stating that reporting for any given month is less than 80% complete. Lack of transportation or poor communication was cited by 87% of districts as the primary reason for incomplete reporting. More than half of the districts also stated that they receive reports from facilities that are either sometimes or never completed correctly.

Regarding the analysis of immunization data, 24 districts (63%) say they monitor coverage on a monthly basis, with 17 (45%) using measles coverage as the indicator. Only 15 (40%) of districts monitor drop out rates monthly, with seven using the BCG - measles drop out rate as the indicator. Only 12 (32%) districts reported using the monthly monitoring chart regularly.

An analysis of disease surveillance data reporting shows that districts are aware of the established reporting practices, with 29 districts (73%) stating that polio cases should be reported within 48 hours and 27 (71%) stating that they practice zero case reporting. However, there was limited knowledge of standard case definitions for polio, measles and neonatal tetanus. The fact that 30 (79%) districts stated that no cases of polio had occurred in 1991 while HIS data shows that districts reported 1600 cases during the year demonstrates some confusion about the polio case definition.

The needs assessment results support the conclusion that training district level staff to use immunization and disease surveillance data is relevant and necessary. The proposed agenda for the monitoring and disease surveillance workshop will address the needs identified.

B. Workshop Agenda and Training Materials

Participants at the both the Training of Trainer's workshop and the PHMT workshop were very motivated and interested in improving immunization coverage, monitoring and disease surveillance in their provinces. They found the workshop materials to be relevant and useful. The participants, facilitators and the KEPI MU concluded that these materials could be used with relatively few modifications for the DHMT trainings. The one day session on monitoring immunization coverage was determined to contain too much material and should be revised for these subsequent workshops.

Most participants at the two workshops acknowledged that they were covering the training materials for the first time. Consequently, it may not be reasonable to expect the trainers and the PHMT members to be familiar enough with the material after one exposure to independently begin training DHMT members. The KEPI MU may wish to assist province teams with their district level workshops until the teams become completely familiar with the material.

The detailed facilitators notes developed by the REACH Technical Officer and KEPI Data Management Officer should assist the provincial training teams in conducting workshops. The notes contain the suggested objectives, training methods, reference materials and content for each workshop session. The notes also describe a suggested order for presenting the content

of each session. These notes were used by the facilitators during both workshops and have been modified based on this experience. The facilitator's notes appear as Annex 3.

Many of the workshop sessions were designed to be very interactive and to maximize the involvement of participants. As a consequence, facilitators will need to have experience in leading large group discussions, brain-storming sessions, small group exercises, field exercises and group presentations. Facilitators from the MTCs and RHTU do not routinely use all of these training techniques in their daily work but will no doubt improve their skills in these techniques as they train DHMTs. However, the KEPI MU may wish to also assist province training teams with their facilitating skills during the first DHMT workshops.

C. Disease Surveillance Objectives for Polio, Neonatal Tetanus and Measles

Participants of both workshops used the results from the disease surveillance field exercise and their own experience with disease surveillance to determine if the present routine disease surveillance reporting system can meet the surveillance objectives for polio, NNT and measles outlined at the Measles control workshop.

These disease surveillance objectives are described below, together with the workshops' conclusions as to whether these objectives can be met by the existing routine disease surveillance reporting system.

1. OBJECTIVE: Report monthly all measles cases by age, sex and vaccination status.

a. Measles case definition

Participants felt that the WHO-recommended case definition for measles agrees with the measles case definitions used in Kenya. One participant noted that it would be important to include in the definition the presentation of measles in an immunized child.

b. Report Monthly

The out-patient morbidity report is sent monthly from health facilities to the district headquarters and HIS. However, the in-patient morbidity and mortality report is sent only on a quarterly basis. The protocol for reporting in-patient morbidity and mortality needs to be changed if all measles cases are to be reported monthly.

c. Age and Sex

The in-patient register records age and sex data, together with the patient's diagnosis. The quarterly in-patient morbidity report collects the age of reported cases. Consequently the age of in-patient cases could be routinely reported. However, the sex of in-patient cases could not be reported unless the in-patient morbidity form is modified.

The out-patient register is designed to record the age, sex and diagnosis of out-patient cases. Age and sex are usually recorded in the register but the out-patient's diagnosis is generally not recorded because patients do not return to the registrar after seeing the clinician and receiving a diagnosis. Consequently it is not possible to match the diagnosis recorded in the clinical area with a patient's age and sex data recorded in the registrar's office. These data cannot be routinely reported for out-patient measles cases.

Clinic procedures will need to change in order to collect age, sex and diagnosis data for out-patient measles cases. Patients could return to the registrar after attending the clinic area to have the diagnosis recorded before visiting the pharmacy or leaving the facility. Alternatively, the clinician or other medically trained personnel could complete the out-patient register in the clinical area.

Lastly, the monthly out-patient morbidity report does not collect age and sex data for reportable diseases. Consequently this form must be modified, if these data are to be routinely reported for all out-patient measles cases.

d. Vaccination Status

The in-patient register does not record the patient's vaccination status. This information is recorded in the patient's hospital record, and could be abstracted. Consequently, at present the vaccination status of in-patient cases could not be routinely collected. Furthermore, the quarterly in-patient morbidity report would have to be modified as it does not record the vaccination status of cases.

The out-patient register and the out-patient morbidity report also do not record vaccination status, so this information could not currently be reported routinely for out-patient cases either.

2. OBJECTIVE: For all measles outbreaks, report, investigate and take necessary action.

Disease charts and disease maps generally cannot be prepared at the district or facility level because the diagnosis is not routinely recorded in the out-patient register along with the out-patient's address and other identifying information. Because health facilities and districts generally do not use out-patient disease surveillance data to make disease charts and graphs, they may not be successful in identifying outbreaks that require investigation. Furthermore, the address data recorded in the out-patient register is often not complete. Frequently, only the name of the chief of the locality is listed and this information is not adequate to locate the case for follow-up. Consequently, even if a diagnosis were available together with the address, it may not be complete enough to allow follow-up. More detailed address data needs to be collected in conjunction with a change to permit entry of a diagnosis in the out-patient data.

For in-patient cases, the address is recorded together with the diagnosis on the in-patient register. However, the address data collected in the in-patient register is also not complete and must be more detailed to allow for case follow-up and investigation.

Participants at the PHMT workshop noted that there is no clear operational definition for an outbreak of measles and no clear guidelines on how to respond to one. The KEPI MU should work to develop such guidelines and train province, district and facility staff in their use. REACH could assist the KEPI MU in developing an operational definition and response guidelines as part of its Measles Initiative activities in Kenya.

3. OBJECTIVE: Report monthly all cases of NNT by age, sex and TT status of the mother, separately from other tetanus cases.

a. Report all cases of NNT by age and sex

Currently, NNT cannot be reported from out-patient departments because NNT is not listed separately as a reportable disease on the out-patient morbidity report. Only total tetanus is listed. The KEPI Manager stated that KEPI is in the process of having the out-patient morbidity report changed to include NNT as a separate reportable disease. The changes noted above to include the age and sex of out-patient cases on the out-patient morbidity report are also required to meet this objective.

On the quarterly in-patient morbidity report, NNT is listed separately and is reported from in-patient departments. The age and sex of in-patient cases is recorded together with their diagnosis, and could be reported. However, as noted above, the in-patient morbidity and mortality report does not include sex data and is sent on a quarterly basis. Modifications to incorporate sex data and monthly reporting are required to meet this objective.

b. Report TT status of the mother

The mother's TT status is not routinely recorded in the out-patient register, the in-patient register or in the in-patient's hospital record. Furthermore, neither the monthly out-patient or the quarterly in-patient morbidity report record this information. Both the patient registers and reporting forms must be modified in order to meet this objective.

4. OBJECTIVE: Report and investigate all cases of acute flaccid paralysis

a. Report all cases of ACUTE flaccid paralysis

Participants felt that there was much confusion about the case definition for polio. They were unsure whether only acute cases of paralysis should be reported or whether cases of residual paralysis should also be reported. Participants felt that currently, residual, non-acute, cases of paralysis were being reported as polio, together with acute cases. This is consistent with the finding that while 1600 cases of polio were reported to HIS during 1990, 30 of 41 districts claimed that no cases of acute polio were seen in their district during the same period. The KEPI Manager stated that Kenya was among the group of African countries with fewer than 10 acute cases per year and Polio 3 coverage above 80%.

KEPI may wish to widely distribute the case definition for acute flaccid paralysis and ensure that only acute cases are reported. Furthermore, it may be useful for KEPI to complete a retrospective review of polio cases reported during 1991. This review could determine an accurate estimate of the incidence of acute flaccid paralysis, useful for planning an appropriate level of polio reporting and control activities. Furthermore, the review would identify the locations that are most likely to see and report acute polio cases. These locations could be closely supervised to ensure complete reporting.

b. Report all cases within 48 hours

Reporting objectives for polio include the immediate reporting of suspected polio cases within 48 hours. The MOH's Weekly Report of Communicable Diseases is intended to

allow health facilities to report the incidence of 45 communicable diseases to the district headquarters on a weekly. The report is not currently used, but represents an existing mechanism for rapid reporting.

The MOH, HIS and KEPI may wish to modify the Weekly Report before recommending it be re-introduced. The form should contain only those disease with epidemic potential for which the MOH has a specific control plan. These disease would likely include cholera, meningitis and polio. After revision, the form could be re-introduced to health facilities in conjunction with training on the new reporting objectives.

c. Investigate all cases

As mentioned under Objective 2, the failure to record the address of out-patients and in-patients in sufficient detail for identification and follow-up will also inhibit the investigation of cases of acute flaccid paralysis.

5. **OBJECTIVE:** Report ALL cases of measles, neonatal tetanus and acute flaccid paralysis

Participants felt that the definition of the completeness of reporting is not clear, with completeness referring either to the information on the individual reporting form or to the receipt of reports at the next higher level. This uncertainty prevents staff from monitoring the completeness of reporting and ensuring that all cases are reported.

KEPI may wish to distribute the standard, WHO recommended definition for completeness of reporting, and recommend that districts and provinces use an appropriate tool to monitor the completeness of reporting on a monthly basis.

D. Monitoring Immunization Coverage

1. Catchment Areas

Participants in the Training of Trainers workshop discussed the concept of health facility catchment areas. These discussions revealed that health facilities face considerable difficulties in determining the boundaries their catchment area and its population. Without this population data, facilities cannot routinely monitor immunization coverage or their performance.

The participants noted that there are no existing guidelines for health facilities to use to determine their catchment area and felt that KEPI should make it a priority to develop these guidelines.

The participants suggested the following guidelines:

a) Health facilities should identify those locations from which clients who are using their facility come, using patient registers. The population of these locations should be determined.

b) Health facilities should use district maps to identify all locations within a certain boundary. The boundary should represent the expected limits of the catchment area and be drawn to include all locations that the health facility expects to use its services. Health facility staff should remember that the decision to use a facility does not always depend simply on the distance to that facility. However, for practical purposes, distance

should be the first criteria used to define the expected limits of a facility's catchment area.

c) Health facilities should list all locations within the expected boundary of the facility. They should compare these locations with the list of locations found to actually be using the facility.

d) Locations that do not use the facility should be visited to determine where their residents are going to obtain health care. If the residents of a location are using another health facility, then the location should not be included in the catchment area of the facility. However, if residents of the location are not using any other health facility, the location should be included in the facility's catchment area. Future use of the facility's services should also be discussed with the residents of that location.

2. Identifying causes for poor program performance and causes for failing to achieve objectives.

During the PHMT workshop, PHMT members gave a presentation on immunization coverage in their province and on the most important barriers to achieving high coverage. During the presentations, each province listed all potential problem areas (access, drop-out, missed opportunities) as actual barriers to high coverage in their province. Little evidence was provided to support their conclusions, suggesting that provinces require training and appropriate tools to help them make more precise determinations of the most important barriers to high coverage in their province.

As PHMT members did not complete the field exercise that was intended to providing training in tools for problem identification, provinces may benefit from such training at a later date.

ANNEX 1

KEPI MONITORING AND DISEASE SURVEILLANCE WORKSHOP
TRAINING OF TRAINERS
May 11 - 15, 1992

SUNDAY, 10 MAY 1992

4:30 p.m. Arrival of Participants

MONDAY, 11 MAY 1992

8:30 a.m. - 9:00 a.m. Registration

9:00 a.m. - 9:15 a.m. Opening Remarks

9:15 a.m. - 9:45 a.m. Session One

Introduction To Workshop

- Workshop Objectives
- Workshop Agenda and Methodolgy
- Participant Expectations
- Administrative Matters

9:45 a.m. - 10:30 a.m. Session Two

Africa Regional Coverage and
Disease Control Targets

Plenary

Disease Surveillance in Kenya

10:30 a.m. - 11:00 a.m. BREAK

11:00 a.m. - 1:00 p.m. Session Three

A. Introduction to Disease Surveillance Plenary

- Purpose of Disease Surveillance

B. Plan for Disease Surveillance

- Review of Surveillance Systems Plenary

- KEPI/HIS Reporting Requirements

- Case Definitions for Reportable Diseases

- Identifying Information Collected Group
by Different Systems

1:00 p.m. - 2:00 p.m. LUNCH BREAK

2:00 p.m. - 3:00 p.m. Session Four

Kenya and Regional Overview on Reporting
Requirements for Disease Control Programs

3:00 p.m. - 3:15 p.m. BREAK

3:15 p.m. - 5:00 p.m. Session Five

A. Collecting and Compiling Data

- Indicators for Monitoring Reports of Plenary Disease Surveillance Data
- Briefing on Disease Incidence by Province

B. Analyzing Disease Surveillance Data Group

- Identifying Trends
- Tools for Analyzing Disease Surveillance Trends
- Interpreting Trends and Identifying Possible Causes for Trends

C. Identifying Actions Based on Disease Trends and Their Causes Group

TUESDAY, 12 MAY 1992

8:30 a.m. - 1:00 p.m. Session 6

Field Exercise for Disease Surveillance

1:00 p.m. - 2:00 p.m. LUNCH BREAK

2:00 p.m. - 3:00 p.m. Session 6 Cont.

Preparation of Group Reports from Field Exercise

3:00 p.m. - 3:15 p.m. BREAK

3:15 p.m. - 4:00 p.m. Session 6 Cont.

Presentation of Group Reports

4:00 p.m. - 5:00 p.m. Session 7

Preparation of Province Plan of Action

WEDNESDAY, 13 MAY 1992

8:00 a.m. - 9:00 a.m. Session 10

Monitoring Immunization Coverage

- Introduction to Monitoring
- Province Presentations on Current Monitoring Practices

9:00 a.m. - 10:15 a.m. Session 11

EPI Attributes and Indicators of Program Performance

Indicators for Monitoring Completeness and Timeliness of Reporting

10:15 a.m. - 10:30 a.m. BREAK

10:30 a.m. - 1:00 p.m. Session 12

Sources of Data for Monitoring

- Introduction Plenary
- Routine Reports
KEPI Immunization Reporting Forms and Reporting Requirements
- Identifying Clinic Catchment Areas
- Current Levels of Immunization Coverage in Kenya Based on Routine Reports
- Coverage Surveys
- Determining Sources for Monitoring Group Indicators

1:00 p.m. - 2:00 p.m. LUNCH

2:00 p.m. - 3:00 p.m. Session 13

Calculating Indicators from Different Sources Group

3:00 p.m. - 3:15 p.m. BREAK

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3:15 p.m. - 4:45 p.m. Session 14

Tools for Monitoring Indicators

-Monthly Monitoring Chart Plenary
-KEPI Feedback Reports

-Interpreting Monthly Cumulative Report and Annual Drop Out Report Group

4:45 p.m. - 5:30 p.m. Session 15

Problem Solving to Increase Immunization Coverage

-Identifying Possible Cause for Poor Program Performance Group

-Province Presentations on Barriers to High Coverage

Evening

Tools/Sources of Information for Identifying Causes Group

THURSDAY, 14 MAY 1992

8:30 a.m. - 9:30 a.m. Session 15 cont.

Group Presentations and Introduction to Field Exercise

10:00 a.m. - 1:30 p.m. Session 16

Field Exercise to Identify Causes of Poor Program Performance

1:30 p.m. - 2:30 p.m. LUNCH

2:30 p.m. - 3:30 p.m. Session 17

Presentations from Field Exercise

3:30 p.m. - 4:00 p.m. BREAK

4:00 p.m. - 5:00 p.m. Session 18

Identifying Solutions to Problems

FRIDAY 16 MAY 1992

8:30 a.m. - 9:30 a.m. Session 19

Setting Objectives to Improve Immunization Coverage

9:30 a.m. - 10:30 a.m. Session 20

Province Plan of Action to Increase Immunization Coverage

10:30 a.m. - 11:00 a.m. BREAK

11:00 a.m. - 12:00 p.m. Session 20 Cont.

Province Plan of Action to Increase Immunization Coverage

12:00 p.m. - 1:00 p.m. Session 20 Cont.

Presentation of Plans of Action

1:00 p.m. - 2:00 p.m. LUNCH

2:00 p.m. - 3:00 p.m. Session 20 Cont.

Presentation of Plans of Action

3:00 p.m. - 5:00 p.m. Evaluation and Closure

Annex 2

KEPI MONITORING AND DISEASE SURVEILLANCE WORKSHOP
FOR PROVINCIAL HEALTH MANAGEMENT TEAMS
May 18 - 22, 1992

SUNDAY, 17 MAY 1992

4:30 p.m. Arrival of Participants

MONDAY, 18 MAY 1992

8:30a.m. - 8:45 a.m. Registration

8:45a.m. - 9:15 a.m. Opening Remarks

- Dr. Muu, KEPI Manager
- Mr. Alnwick, UNICEF
- Mr. Per Milde, DANIDA

9:15 a.m. - 9:45 a.m. Session One

Introduction To Workshop

- Workshop Objectives
- Workshop Agenda and Methodology
- Participant's Expectations
- Administrative Matters

9:45 a.m. - 10:30 a.m. Session Two

Africa Regional Coverage

Plenary

Disease Control Targets and
Surveillance Requirements for NNT,
Polio and Measles

10:30 a.m. - 10:45 a.m. BREAK

10:45 a.m. - 11:30 p.m. Session Three

Policy Issues on Surveillance
Requirements for NNT, Polio,
Measles

Plenary

11:30 a.m. - 1:00 p.m. Session Four

Disease Surveillance in Kenya

Plenary

- Purposes of Disease Surveillance
- Briefing on Use of Disease Surveillance
Data by Provinces

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1:00 p.m. - 2:00 p.m. LUNCH BREAK

2:00 p.m. - 3:00 p.m. Session Five

Plan for Disease Surveillance Plenary

-Review of Surveillance Systems

-KEPI/HIS Reporting Requirements

-Identifying Information Collected by Different Surveillance Systems Group

3:00 p.m. - 3:30 p.m. Session Six

Collecting and Compiling Data

-Indicators for Monitoring Reports of Disease Surveillance Data Plenary

3:30 p.m. - 3:45 p.m. BREAK

3:45 p.m. - 5:30 p.m. Session Seven

Analyzing Disease Surveillance Data Group

-Identifying Trends

-Tools for Analyzing Disease Surveillance Trends

-Interpreting Trends and Identifying Possible Causes for Trends

-Identifying Actions Based on Disease Trends and Their Causes

TUESDAY, 19 MAY 1992

8:30 a.m. - 1:00 p.m. Session Eight

Field Exercise for Disease Surveillance

1:00 p.m. - 2:00 p.m. LUNCH BREAK

2:00 p.m. - 3:30 p.m. Session Eight Cont.

Preparation of Group Reports from Field Exercise

3:30 p.m. - 3:45 p.m. BREAK

3:45 p.m. - 5:15 p.m. Session Eight Cont.

Presentation of Group Reports

5:15 p.m. - 5:30 p.m. Session Nine

Instructions for Preparing Province Reports
on Immunization Coverage and Disease
Surveillance

WEDNESDAY, 20 MAY 1992

8:30 a.m. - 10:30 a.m. Session Ten

Monitoring Immunization Coverage Group

-Introduction to Monitoring

-Province Presentations on Current Monitoring
Practices

-EPI Attributes and Indicators of Program
Performance

10:30 a.m. - 10:45 a.m. BREAK

10:45 a.m. - 11:30 a.m. Session Eleven

Indicators for Monitoring Completeness and
Timeliness of Reporting

11:30 a.m. - 1:00 p.m. Session Twelve

Sources of Data for Monitoring

-Introduction Plenary

-Routine Reports

KEPI Immunization Reporting Forms
and Reporting Requirements

Current Levels of Immunization Coverage
in Kenya Based on Routine Reports

-Coverage Surveys

Determining Sources for Monitoring Group
Indicators

1:00 p.m. - 2:00 p.m. LUNCH

2:00 p.m. - 3:00 p.m. Session Thirteen

Calculating Indicators Using Group
Different Sources of Data

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3:00 p.m. - 3:30 p.m. Session Fourteen
Tools for Monitoring Indicators Group
-Monthly Monitoring Chart
--KEPI Feedback Reports

3:30 p.m. - 3:45 p.m. BREAK

3:45 p.m. - 4:45 p.m.
Developing and Interpreting Monthly Monitoring Chart Group

4:45 p.m. - 5:30 p.m. Session Fifteen
Problem Solving to Increase Immunization Coverage Group
- Identifying Possible Cause for Poor Program Performance

THURSDAY, 21 MAY 1992

8:30 a.m. - 8:45 a.m. Session Sixteen

Introduction to Field Exercise

8:45 a.m. - 1:00 p.m. Session Sixteen Cont.

Field Exercise to Identify Causes of Poor Program Performance

1:00 p.m. - 2:00 p.m. LUNCH

2:00 p.m. - 3:00 p.m. Session Sixteen Cont.

Preparation of Field Exercise Reports Group

3:00 p.m. - 3:30 p.m. Session Sixteen Cont.

Presentation of Field Exercise Reports Plenary

3:30 p.m. - 3:45 p.m. BREAK

3:45 p.m. - 4:30 p.m. Session Sixteen Cont.

Presentation of Field Exercise Reports Plenary

4:30 p.m. - 5:30 p.m. Session Seventeen

Identifying Solutions to Problems Group

FRIDAY, 22 MAY 1992

8:30 a.m. - 9:30 a.m. Session Eighteen

Reviewing Guidelines for Province
Plans of Action

Plenary

9:30 a.m. - 10:30 a.m. Session Eighteen Cont.

Preparation of Province Plan of Action

Group

10:30 a.m. - 10:45 a.m. BREAK

10:45 a.m. - 1:00 p.m. Session Eighteen Cont.

Perparation of Province Plan of Action

Group

1:00 p.m. - 2:00 p.m. LUNCH

2:00 p.m. - 4:00 p.m. Session Eighteen Cont.

Presentation of Province Plan of Action

Plenary

Discussion of Plans

4:00 p.m. - 4:15 p.m. Evaluation

4:15 p.m. - 4:30 p.m. Closure

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Expanded Programme on Immunization

**A district Level Guide
to Measure Progress in the
Elimination of Neonatal Tetanus**

Prepared by
Dr Jotna Sokhey
Dr Marc LaForce

A DISTRICT LEVEL GUIDE TO MEASURE PROGRESS
IN THE ELIMINATION OF NEONATAL TETANUS

1. INTRODUCTION

WHO's General Assembly has made the elimination of neonatal tetanus a goal to be reached by 1995. While much progress has been made in immunizing populations at risk, neonatal tetanus (NNT) continues to be an important public health problem in many countries. If the elimination target is to be met, techniques will have to be developed which can reliably identify areas where NNT has been controlled and where it continues to be a problem in order that intensified control measures can be implemented.

There are large differences in risk factors and immunization coverage within countries. District-wise estimation of NNT risk and identification of high-risk pockets would enable a more focussed application of control measures so that NNT incidence rates could be rapidly reduced. Such a strategy is essential if the goal of NNT elimination is to be achieved by 1995.

2. DEFINITIONS

2.1 NNT High Risk (Not under control)

Districts with reported NNT rates greater than 1/1000 live births (after correction for sex bias); —

or districts determined to be at high risk by assessment of delivery practices and vaccination coverage (Table 3).

2.2 NNT control

Districts with reported NNT rates less than 1/1000 live births (after correction for sex bias);

and districts determined to be at low risk by assessment of delivery practices and vaccination coverage (Table 3).

2.3 NNT Elimination

Districts with reported rates less than 1/10,000 live births (after correction for sex bias);

and districts determined to be at low risk by assessment of delivery practices and vaccination coverage (Table 3).

CRUDE ESTIMATE OF NNT RISK

In order to calculate crude estimate of risk certain baseline information should be collected at the district level. These include prior reported cases, TT2 coverage rates, obstetric and basic demographic information (Tables 1 & 2).

Table 1		
DEMOGRAPHIC, TT IMMUNIZATION AND OBSTETRIC DATA	YEAR 199_	
DISTRICT _____		
A. DEMOGRAPHIC DATA		
Total population	_____	
Birth rate (199_)	_____	
Est. number of births	_____	
Percentage of rural population	_____	
B. IMMUNIZATION STATUS		
Est. coverage of pregnant women (%)	_____	
Performance by doses TT1	_____	
TT2	_____	
TT2+	_____	
C. OBSTETRIC FACTORS		
Place of delivery (%) -	Institutional	_____
	Home	_____
	Other	_____
Delivery attended by (%) -	Medical/ health staff	_____
	Trained TBA	_____
	Untrained TBA	_____
	Other (unattended)	_____

Table 2
TRENDS OF NEONATAL TETANUS CASES

Year	Est. Births	No. NNT cases	NNT rate/ 1000 births	TT2/+ (%)
1988	_____	_____	_____	_____
1989	_____	_____	_____	_____
1990	_____	_____	_____	_____
1991*	_____	_____	_____	_____
1992*	_____	_____	_____	_____

- corrected for gender bias.

Variables that affect NNT rates include percentage of institutional deliveries, deliveries by trained personnel (including paramedical health staff and trained traditional birth attendants (TBAs) and coverage of pregnant women with two or more doses of tetanus toxoid (TT). These variables can be introduced into a simple grading system to evaluate risk of NNT at the district level. To use this assessment tool, circle the point value for each of the three variables listed; add the numbers and insert the total in the indicated space below the table.

Table 3
ASSESSMENT OF RISK FOR NEONATAL TETANUS

Variable	Points
▶ Rate* > 1/1000	+5
▶ Rate < 1/1000	0
▶ Rate not known	+5
▶ Unattended deliveries > 75%	+5
50 - 70%	+3
< 50%	0
▶ TT2/+ Coverage** < 50%	+5
50 - 70%	+2
70 - 85%	-2
> 85%	-4

* Rate corrected for sex bias; total cases equals male cases x 2 (see below).

** Immunization coverage in pregnant women...

TOTAL _____

0 - 4 POINTS = NNT LOW RISK
5 POINTS OR MORE = NNT HIGH RISK

[Handwritten notes and signatures]

In the absence of high (greater than 85%) TT2 coverage rates in pregnant women and hygienic delivery practices all districts in the developing countries are at high risk of neonatal tetanus since more than half of the deliveries are domiciliary and in rural settings.

4. SURVEILLANCE AND SEARCH FOR NEW CASES

Reliable surveillance data are essential for determining that NNT has been eliminated. In districts where NNT elimination has not yet been achieved, surveillance data is also required for prioritizing immunization activities for high risk areas.

Districts determined to be at high risk on the basis of low TT2 coverage and a high fraction of domiciliary births but with a calculated NNT rate less than 1 per 1000 live births should make a special effort to review hospital and other health facility records. This review of information at treatment sites is important to identify cases that may not have come to the attention of district EPI personnel through routine surveillance.

Registers in general hospitals and contagious disease hospitals (fever hospitals) are particularly rich sources of clinical and epidemiological information. Name, age at onset, sex, village, date of admission and outcome are usually available from these sources (Table 4). Maternal immunization status should be recorded as far as possible.

Table 4 SUGGESTED FORMAT FOR LINE LISTING NNT CASES						
Record No.	Name	Age (days)	Sex	Village/ Address	Date of Admission	Outcome
1.	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____	_____

Hospital based data are easy to obtain and can be updated on a regular basis. In some countries cases of NNT are preferentially referred to contagious disease units which further simplifies data gathering. The principal weakness of the data may be their incompleteness because cases not brought to the hospital are not registered.

5. CORRECTION FOR SEX BIAS

Many countries report a major male preponderance of NNT. However, there is no plausible biological reason why male infants should be more susceptible to NNT than female infants. Support for this assertion comes from NNT data in countries with comprehensive surveillance systems where male and female cases of NNT are virtually equal (Stanfield & Galazka, Bulletin WHO; 62:647, 1984).

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A simpler explanation is that in most countries there is a greater likelihood that male infants with NNT will be brought to health facilities more frequently than female infants. Thus, there is a systematic under-reporting of total NNT cases because of gender bias. For purposes of classification of district-specific NNT risk, it is important to take into account this sex bias. IN DISTRICTS WITH NNT MALE TO FEMALE RATIOS OF GREATER THAN 1.5 THE TOTAL CASES SHOULD BE EQUAL TO TWO TIMES THE NUMBER OF REPORTED MALE CASES.

6. ORGANIZATION OF DISTRICT DATA

District data should be organized as follows:

- 6.1 Line listing of cases (Table 4).
- 6.2 Spot map showing location of cases by village of residence.
- 6.3 Calculation of village specific attack rates (Table 5).

Table 5 CALCULATION OF VILLAGE SPECIFIC ATTACK RATES				
Village/ City	Population	Births	NNT cases	Rate per 1000 births
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

NNT cases tend to occur in clusters and the calculation of village specific rates and spot mapping identify high risk pockets and help to prioritize control activities.

7. COUNTRY PROFILE

Once districts have been classified, national progress in the elimination of NNT can be summarized by updating a composite statement of districts classified by NNT risk (Table 6).

Table 6 COUNTRY PROFILE BY DISTRICTS		
Classification	No. Districts	Population
▶ NNT high risk	_____	_____
▶ NNT control	_____	_____
▶ NNT elimination	_____	_____

3. PROPOSED ACTION IN HIGH RISK DISTRICTS

The above exercise seeks to determine risk status with the assumption that enhanced immunization activities must occur in high risk districts in order to reach the goal of NNT elimination by 1995. The following steps are suggested in high risk pockets identified through calculation of village specific attack rates and spot mapping of cases (Table 7).

- ▶ Antenatal registration should be checked for completeness.
- ▶ All registered women should be completely immunized.
- ▶ Active search for new cases in villages with reported cases of NNT should be done.
- ▶ A list of all TBAs in the area should be made and their training status assessed.
- ▶ TBAs, who deliver a NNT case, should be supervised and, if necessary, retrained.
- ▶ An adequate supply of delivery kits should be assured.

Table 7 PROPOSED ACTION IN HIGH RISK DISTRICTS
<ul style="list-style-type: none">▶ Check antenatal registration for completeness▶ Review TT immunization coverage▶ List TBAs and check training status▶ Supervise deliveries by TBAs who delivered case▶ Adequate supply of delivery kits▶ Search for new NNT cases