

# **Guidelines for Investigating Suspected Cases of Neonatal Tetanus**



Expanded Programme  
on Immunization



World Health Organization  
Geneva, 1993

The Expanded Programme on Immunization wishes to thank the Government of Sweden whose support made the production of this module possible

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## Introduction

The purpose of these *Guidelines for Investigating Suspected Cases of Neonatal Tetanus* is to provide health centre staff with guidance on what to do when a suspected case of neonatal tetanus is reported.

### **1. Why is investigation of suspected cases of neonatal tetanus important?**

Investigation of suspected cases of neonatal tetanus (NT) is performed for three reasons:

- a. NT is one of the leading causes of infant mortality. Investigations of suspected cases will help us find ways to prevent the occurrence of similar cases.
- b. NT is seriously under-reported. Therefore, when we hear about one case, we want to find out as much as we can about it because that one reported case may represent many unreported ones.
- c. Tetanus toxoid (TT) immunization of women has been badly neglected, especially as compared to children's immunizations. An investigation of a suspected case in a community can help make the people living there aware that something can be done to prevent NT and, perhaps, other cases as well. In addition, getting more information about the number of cases and the causes of NT can help convince policy-makers to support TT immunizations and other prevention measures.

### **2. What is the purpose of an investigation of a suspected case?**

Case investigations for suspected cases of NT serve three purposes:

- a. To confirm diagnoses of NT that have been made by untrained people.
- b. To determine why cases occurred.

- c. To lead to actions that will prevent cases in the future.
- d. To strengthen the immunization programme.

### **3. Who should carry out investigations of suspected cases?**

Health centre staff, preferably supervisors, should carry out investigations in order that they can plan and carry out effective remedial actions.

### **4. When should investigation of suspected cases of NT be carried out?**

An investigation should begin as soon as possible but not later than a month after a suspected case is reported. The mother will remember more details about the delivery; you can learn more about what caused it; and preventive measures can be taken more quickly.

Eventually, all neonatal deaths should be investigated to confirm or exclude NT (see p. 4).

### **5. How should these guidelines be used?**

These guidelines describe the seven most important steps in conducting an investigation of a suspected case, listed in chronological order.

Health centre supervisors and others who might conduct investigation of suspected cases should read these guidelines now and, then, when a suspected case is reported, use them for step-by-step reference.

# 1. Finding Out About Suspected Cases

**N**eonatal tetanus is often called the "silent" or "invisible" killer because health workers rarely see it, particularly when babies are born at home. Babies may be born, become ill, and die without being treated or even seen by a health worker. Often, the fact that the baby was born and died is never reported. Thus, your first task is to find out about suspected cases.

Finding cases is easiest when:

- A newborn with suspected NT is brought to your health centre.
- You are asked to go to the home of a newborn with suspected NT.
- You are notified by a non-government health facility (e.g., mission hospital or private physician) that they have treated a newborn with suspected NT.

You can also take an active role in finding suspected cases. One way to do this is to look for suspected cases while doing other duties. For example:

- *During outreach.* When you visit communities for outreach sessions, you should ask community leaders, traditional healers, and other knowledgeable individuals whether there have been any recent neonatal deaths (i.e., death of an infant before one month of age) and how the deaths occurred. If you have time and are trained to conduct investigations of suspected cases, you should do so immediately. If not, report the suspected case to the health centre supervisor for investigation.
- *While investigating another suspected case.* While you are investigating one suspected case, you should ask people in the community whether any similar suspected cases have recently occurred. If so, investigate them immediately. Even one piece of information from several suspected cases, for example that all of the affected newborns were delivered by the same attendant, can be valuable in preventing more.

In general, whenever any health centre staff member hears about a neonatal death, he or she should find out what signs the baby exhibited. If it sounds at all like neonatal tetanus, investigate.

## 2. Record- Keeping

**R**ecord-keeping is an important part of the investigation and should begin as soon as a suspected case is identified. Like other EPI records, records in NT investigations are important for the following reasons:

- They can help you plan activities to prevent more cases.
- When the records show that the number of cases is high, the information can help you find out what is wrong.
- When the records show that the number of cases is falling, they show you that you are probably doing a good job in preventing cases.
- Records such as maps can help you identify high-risk areas.
- Records can be used to convince policy-makers that the problem of neonatal tetanus is serious and that the resources that they have been providing are being used to good effect.

Most health centres already keep the kinds of records that investigations of suspected cases of NT require. (Examples of each of the records described below appear in the annex.)

1. *The Investigation Form for Suspected Cases*, described in Section 3. (The form in the annex is more detailed than the one appearing in the Mid-Level Manager Training materials on Disease Surveillance. You may either use this special investigation form or adapt the Mid-Level Training form.)
2. *Patient Register*. This is the record of information about each patient or client that should be kept by all health centres. When a health worker sees an infant with neonatal tetanus, he or she will record in the register the date of the visit; the name, address, and age of the infant; and the immunization status of the mother. (See Annex.)
3. *Tally*. When a case of NT is diagnosed by a health worker and recorded in the Patient Register, a tally mark representing that case should be made on the Monthly Surveillance Report. At the end of the month, these tally marks are added to determine the total number of NT cases diagnosed.

4. *Case Map.* Put a pin on a map of the area to show where the NT patient was born. You can use the map to find out whether there are a number of cases occurring in the same location. (See Annex.)
5. *Chart.* If enough cases occur each month to warrant it, you can plot the number of diagnosed cases on a bar chart and post it in the health centre. The chart will show the incidence of cases over a year's time. (See Annex.)

If, typically, you have no NT cases or only one per month, do not use a bar chart but post the monthly occurrence on a list, as for example:

January	0
February	0
March	1
etc.	

6. *Monthly Surveillance Report.* Also at the end of each month, your health centre should submit a Monthly Surveillance Report, together with the Investigation Forms For Suspected Cases of NT completed that month, to the district office. See Section 7 for details.

### 3. Using the Investigation Form for Suspected Cases

**Y**ou will be using the Investigation Form for Suspected Cases to identify the causes of the case, so fill in the information carefully. Ask all of the questions, but write the information down in whatever order it comes. For example, if the mother has already answered a question before you come to it on the form, don't ask it again!

If the mother doesn't know the answer to a question, write "doesn't know". If she is unsure about the answer, write down what she says and add a question mark (?). Whenever you do not understand an answer, repeat what the person has said and ask her to confirm the information or explain her answer more fully.

*Before you begin the interview*, fill in the top of the form to reduce the amount of writing you do in front of the mother. The Investigation Form for Suspected Cases is found on pp. 25 to 32.

#### Section A. Family Information

Ask the questions, or confirm the information you already have, about the mother and baby.

If the baby has not been given a name yet or was not given a name before he or she died, write "none".

If she has recently moved, it is important to record the length of the mother's residency because it may explain why she wasn't immunized.

Ethnic group identity is useful for the same reason, but do not ask the question if ethnic group membership is obvious to you or is not a factor in the availability of immunizations in the area.

#### Investigation Form for Suspected Cases of Neonatal Tetanus

**I**nstructions: Either circle the appropriate response, or record the answer in the blank space following each item.

Province: \_\_\_\_\_ Village: \_\_\_\_\_  
 Health Centre: \_\_\_\_\_  
 Date suspected case reported: \_\_\_\_\_ Reported by: \_\_\_\_\_  
 Date of investigation: \_\_\_\_\_  
 Name and job title of investigator: \_\_\_\_\_

#### A. Family Information

Family name: \_\_\_\_\_ Given name of mother: \_\_\_\_\_  
 Given name of baby: \_\_\_\_\_  
 Family address: \_\_\_\_\_  
 Date of birth of baby: \_\_\_\_\_ Sex: Male \_\_\_\_\_ Female \_\_\_\_\_  
 How long has the mother lived in the area? \_\_\_\_\_  
 If applicable, to what ethnic group does the family belong? \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Section B. Immunization Status of Mother

### B. Immunization Status of Mother

Was the mother immunized against tetanus:

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, did you see a record (e.g., a TT card) of the mother's tetanus toxoid immunizations?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, copy the dates of all TT immunizations reported:

\_\_\_\_\_  
\_\_\_\_\_

Does the mother remember getting any doses that are not recorded on the card?

Yes \_\_\_\_\_ No \_\_\_\_\_

How many doses? \_\_\_\_\_

When was each dose given? \_\_\_\_\_

If the baby with NTI is not the first child, what is the immunization status of the child born closest in time to this baby? \_\_\_\_\_

Where was the older child immunized? \_\_\_\_\_

Comments (if the mother did not get immunized, try to find out why):

\_\_\_\_\_  
\_\_\_\_\_

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The immunization status of the mother is important information, so make every effort to find out what it is. A record of the mother's immunizations might be found on her TT card or in the Patient Register of her health centre.

If there is no record, ask the mother if she remembers whether she was immunized with TT, with how many doses, and when. If she doesn't remember, write "doesn't know".

If she guesses the dose or the date, write down what she says and add a question mark.

If the mother has *not* been immunized, find out why; was it lack of information, lack of motivation, or some obstacle that prevented it? Get the details!

## Section C. Antenatal Care

### C. Antenatal Care

Did the mother receive antenatal care?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give location and dates (if dates cannot be remembered, give the number of visits):

\_\_\_\_\_  
\_\_\_\_\_

Did the mother visit a health facility for reasons other than antenatal care during this pregnancy?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give the reason for the visit, location, and dates: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

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This information can be helpful in determining whether any opportunities to immunize were missed. If the mother doesn't remember the details of her antenatal care or other visits to a health facility, write down her guesses with a question mark.

## Section D. Birth of Baby

### D. Birth of Baby

Was the baby born in: Hospital?  Health Centre?  Home?   
Other? \_\_\_\_\_

If the delivery was in a health facility, give the name and address: \_\_\_\_\_  
\_\_\_\_\_

Was the delivery attended by: Doctor?  Nurse?  Midwife?

Traditional birth attendant?  Other? \_\_\_\_\_

What is the name and address of the person who attended the delivery? \_\_\_\_\_  
\_\_\_\_\_

On what surface (e.g., cloth, uncovered table, dirt floor) was the baby delivered? \_\_\_\_\_  
\_\_\_\_\_

Did the surface look clean?

Yes  No

Comments: \_\_\_\_\_  
\_\_\_\_\_

Did the person who attended the delivery wash her hands with soap and water immediately prior to delivery?

Yes  No

Comments: \_\_\_\_\_  
\_\_\_\_\_

What was used to cut the cord? \_\_\_\_\_  
\_\_\_\_\_

Was the equipment cleaned and boiled before use? or Did it look new?

Yes  No

Comments: \_\_\_\_\_  
\_\_\_\_\_

How was the cord stump treated or dressed? \_\_\_\_\_  
\_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_

Try to get as many details as you can about what surface the baby was delivered on, whether the attendant was personally clean, what type and condition of equipment was used to cut the cord, and how the cord was treated and dressed. Did the mother see the cord cutting equipment being boiled? Did the equipment and dressings look clean? What herbs or other materials were put on the cord stump?

If a relative or friend of the mother was present during delivery, she might be able to help answer some of these questions.

This information can tell you whether the three Cleans (Clean Surface, Clean Hands, Clean Cord Care) were present during delivery. In addition, it could help you target your training and supervision of birth attendants.

## Section E. Symptoms

### E. Symptoms

Date of onset of illness: \_\_\_\_\_

Did the baby suck and cry normally for the first two days of life?

Yes  No

If no, describe the symptoms: \_\_\_\_\_  
\_\_\_\_\_

After the first two days of life, did the baby have a problem with sucking?

Yes  No

If yes, describe what happened: \_\_\_\_\_  
\_\_\_\_\_

Did the baby become stiff?

Yes  No

If yes, describe what happened: \_\_\_\_\_  
\_\_\_\_\_

Did the baby have convulsions?

Yes  No

If yes, describe what happened: \_\_\_\_\_  
\_\_\_\_\_

Were there other symptoms?

Yes  No

If yes, describe them: \_\_\_\_\_  
\_\_\_\_\_

Did the baby have "reactive" convulsions or seizures?

Yes  No

If yes, describe what happened: \_\_\_\_\_  
\_\_\_\_\_

The answers to the questions in this section will help to confirm whether or not the baby had tetanus. Thus, each question is very important, and you encourage the mother to remember what happened without telling her what to say.

## Section F. Treatment and Outcome

The information in this section may help you further with your diagnosis and will tell you the outcome of the case.

### F. Treatment and Outcome

Was the sick baby cared for in a health facility?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give the facility's name and address. \_\_\_\_\_

\_\_\_\_\_

If yes, what diagnosis was given? \_\_\_\_\_

\_\_\_\_\_

Did the baby die?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, on what date? \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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## Section G. Analysis and Section H. Planning Action

These sections should not be written in the presence of the mother. Complete them only after you have analysed the information and decided what actions to take. See the next two parts, 4 and 5, for instructions on how to do this.

### G. Analysis (to be answered by the interviewer)

Do not fill in this section until you have analysed the information. For guidelines on how to do this, see Guidelines for Investigating Suspected Cases of Neonatal Tetanus, Part 4.

1. Did this baby have neonatal tetanus?

Yes \_\_\_\_\_ No \_\_\_\_\_

2. Why was the baby not protected against neonatal tetanus?

- a. The mother was not immunized.
- b. The mother was immunized but the baby was not born within the period of protection provided by the last valid dose of TT.
- c. The mother was immunized and the baby born within the period of protection, but there might be a programmatic failure.

3. What was the cause of the immunization problem? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. What unclean delivery procedures were followed? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. What was the reason for the unclean procedure? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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### H. Planning Action (to be answered by the interviewer)

Describe the actions that should be taken to prevent similar cases in the future:

a. Through immunization. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

b. Through improved delivery practices. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## 4. Analysing the Data

After completing the interview with the mother, you should have enough information to answer six questions:

1. Did the baby have neonatal tetanus?
2. Why was the baby not protected through TT immunization of his mother?
3. What was the cause of the immunization problem?
4. What unclean delivery procedures were followed?
5. What was the reason for the unclean delivery?
6. What action should be taken? (This question is dealt with in Part 5.)

Following the steps below, systematically analyse each question to find out what went wrong.

### 1. Did the baby have neonatal tetanus?

Review Section E of the Investigation Form to make sure that the suspected case that you investigated meets the official standard case definition of neonatal tetanus. To do so, each of these conditions should have been present:

1. Normal suck and cry the first two days of life, AND
2. Inability to suck (between 3 and 28 days of life), FOLLOWED BY
3. Either stiffness or convulsions or both.

If the mother answered no to any of these three conditions, you may assume that the baby did not have tetanus and stop analysing further.

#### E. Symptoms

Date of onset of illness: \_\_\_\_\_

Did the baby suck and cry normally for the first two days of life?

Yes \_\_\_\_\_ No \_\_\_\_\_

If no, describe the symptoms: \_\_\_\_\_

After the first two days of life, did the baby have a problem with sucking?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened: \_\_\_\_\_

Did the baby become stiff?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened: \_\_\_\_\_

Did the baby have convulsions?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened: \_\_\_\_\_

Were there other symptoms?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe them: \_\_\_\_\_

Did the baby have "reactive" convulsions or seizures?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened: \_\_\_\_\_

**F.**  
**Treatment and Outcome**

Was the sick baby cared for in a health facility?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give the facility's name and address. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If yes, what diagnosis was given? \_\_\_\_\_  
\_\_\_\_\_

Did the baby die?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, on what date? \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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Confirm your diagnosis with that of the health facility, if any, in Section F, Treatment and Outcome.

**2.**  
**Why was the baby NOT protected from neonatal tetanus?**

**B.**  
**Immunization Status of Mother**

Was the mother immunized against tetanus?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, did you see a record (e.g., a TT card) of the mother's tetanus toxoid immunizations?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, copy the dates of all TT immunizations reported:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Does the mother remember getting any doses that are not recorded on the card?

Yes \_\_\_\_\_ No \_\_\_\_\_

How many doses? \_\_\_\_\_

When was each dose given? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If the baby with NT is not the first child, what is the immunization status of the child born closest in time to this baby? \_\_\_\_\_

Where was the older child immunized? \_\_\_\_\_

Comments (If the mother did not get immunized, try to find out why):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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When a baby gets neonatal tetanus, we must assume that the baby did not receive immunity against tetanus from the mother. This part of the analysis should tell you why this immunity was not provided, that is, why he was not protected.

- a. Determine whether the mother had received any doses of TT (Section B on the Investigation Form). If the mother had not received any dose of TT the child could not have been protected.
- b. If the mother had received any doses of TT, determine the number of valid doses of TT that the mother received by reviewing the minimum interval between doses in the schedule below and the dates the mother was given each TT immunization (Section B of the Investigation Form).

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Between doses of:	The minimum interval is:
TT 1 and TT 2	four weeks
TT 2 and TT 3	six months
TT 3 and TT 4	one year
TT 4 and TT 5	one year

If the time between any two of the doses that the mother received was not at least as long as the times shown on the schedule, the latter of the two doses will be invalid.

Determine the period of protection provided by the last valid dose given to the mother by reviewing the schedule below:

If the mother has had:	The period of protection is:
One valid dose	None
Two valid doses	3 years of protection, starting 15 days after the date of the dose
Three valid doses	5 years of protection, starting 15 days after the date of the dose
Four valid doses	10 years of protection, starting 15 days after the date of the dose
Five valid doses	Protection through childbearing age

### Investigation Form for Suspected Cases of Neonatal Tetanus

**I**nstructions: Either circle the appropriate response, or record the answer in the blank space following each item.

Province: \_\_\_\_\_ Village: \_\_\_\_\_  
 Health Centre: \_\_\_\_\_  
 Date suspected case reported: \_\_\_\_\_ Reported by: \_\_\_\_\_  
 Date of investigation: \_\_\_\_\_  
 Name and job title of investigator: \_\_\_\_\_

#### A. Family Information

Family name: \_\_\_\_\_ Given name of mother: \_\_\_\_\_  
 Given name of baby: \_\_\_\_\_  
 Family address: \_\_\_\_\_  
 Date of birth of baby: \_\_\_\_\_ Sex: Male \_\_\_ Female \_\_\_  
 How long has the mother lived in the area? \_\_\_\_\_  
 If applicable, to what ethnic group does the family belong?  
 \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Determine whether the child was born within the period of protection provided by the last valid dose (date of birth in Section A on the Investigation Form)

**G. Analysis**  
(to be answered by the interviewer)

Do not fill in this section until you have analysed the information. For guidelines on how to do this, see Guidelines for Investigating Suspected Cases of Neonatal Tetanus, Part 4.

1. Did this baby have neonatal tetanus?  
Yes \_\_\_ No \_\_\_
2. Why was the baby not protected against neonatal tetanus?
  - a. The mother was not immunized.
  - b. The mother was immunized but the baby was not born within the period of protection provided by the last valid dose of TT.
  - c. The mother was immunized and the baby born within the period of protection, but there might be a programmatic failure.
3. What was the cause of the immunization problem? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. What unclean delivery procedures were followed? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. What was the reason for the unclean procedure? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

If the above analysis shows that the baby was not born within the period of protection provided by TT immunization of the mother or the mother was not immunized at all, circle the correct response in Question 2, Section G on the Investigation Form.

However, if the above analysis shows that the baby was born within a period of protection provided by the immunization of the mother and still got neonatal tetanus the following possibilities should be considered:

1. The immunization history provided by the mother may not be reliable. This is particularly true if the analysis is based on oral history.
2. The mother was immunized with two doses of TT during the last pregnancy, but the immunization was started and completed late. Many women report late in pregnancy for antenatal care and consequently, immunization is begun late. If the second dose is given close to the date of delivery, the mother is not able to produce enough antibodies and to transfer this to the fetus.
3. The mother was immunized with two doses of TT administered at proper intervals, but the TT used was of low potency.
4. The mother was immunized with two doses of potent vaccine at proper intervals, but her immune response was suboptimal. (In most studies performed in developing areas, two doses of TT stimulated the development of tetanus antibody levels considered to be protective. Some women, however may be "bad responders" whose antibody response is below the protective level. The frequency of "bad responders" should be lower than 10%).
5. In some cases, the passive transfer of tetanus antibodies from mother to fetus may be insufficient.
6. The mother was properly immunized with an adequate number of doses of potent vaccine, has sufficient immune response and transfer of antibodies through the placenta. However, the load of tetanus toxin produced in a heavily contaminated stump might be so big that the modest primary immunity is overwhelmed.

When you have completed the above analysis, circle the correct response in Question 2, Section G of the Investigation Form.

### 3. What was the cause of the immunization problem?

#### C. Antenatal Care

Did the mother receive antenatal care?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give location and dates (If dates cannot be remembered, give the number of visits): \_\_\_\_\_

Did the mother visit a health facility for reasons other than antenatal care during this pregnancy?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give the reason for the visit, location, and dates: \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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The third task in the analysis is to identify probable causes for the problem with the *immunization*. This is where you use the information from your discussions with the mother about her immunization history (Section B of the Investigation Form) and her antenatal care history (Section C).

For example, if the mother was not immunized, it might have been because she didn't know about the need for immunizations or was unable to get to the health centre for an immunization.

If the mother was not immunized but her previous child was, the health worker might have missed an opportunity to immunize the mother at the same time as the child was.

If the mother was immunized but her baby was not born until after the period of protection had expired, the reason might have been that she was not told to return for another dose or that her antenatal care clinic did not give tetanus toxoid immunizations.

If the baby was born within the period of protection but still got neonatal tetanus, the vaccine may have been damaged by freezing. In this example, the investigation of the suspected case alone will not give you sufficient evidence: you can only infer that there was a vaccine failure.

When you have finished this part of the analysis, record your findings on the Investigation Form, Section G, Question 3.

#### G. Analysis (to be answered by the interviewer)

Do not fill in this section until you have analyzed the information. For guidelines on how to do this, see Guidelines for Investigating Suspected Cases of Neonatal Tetanus, Part 4.

1. Did this baby have neonatal tetanus?

Yes \_\_\_\_\_ No \_\_\_\_\_

2. Why was the baby not protected against neonatal tetanus?

- a. The mother was not immunized.
- b. The mother was immunized but the baby was not born within the period of protection provided by the last valid dose of TT.
- c. The mother was immunized and the baby born within the period of protection, but there might be a programmatic failure.

3. What was the cause of the immunization problem? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. What unclean delivery procedures were followed? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. What was the reason for the unclean procedure? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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## 4. What unclean delivery procedures were followed?

When a newborn baby gets tetanus, you know that it was introduced into his body through *unclean delivery procedures*. In this part of the analysis, you determine what those might have been.

Look at Section D of the Investigation Form to find what the condition of the surface used for delivering the baby was, whether the attendant was clean, how the cord was cut, and how the cord stump was treated and dressed. This information may help you to identify specific unclean procedures.

At the end of this part of the analysis, describe what you have found in Question 4, Section G of the Investigation Form.

### D. Birth of Baby

Was the baby born in: Hospital?  Health Centre?  Home?

Other? \_\_\_\_\_

If the delivery was in a health facility, give the name and address: \_\_\_\_\_

Was the delivery attended by: Doctor?  Nurse?  Midwife?

Traditional birth attendant?  Other? \_\_\_\_\_

What is the name and address of the person who attended the delivery? \_\_\_\_\_

On what surface (e.g., cloth, uncovered table, dirt floor) was the baby delivered? \_\_\_\_\_

Did the surface look clean?

Yes  No

Comments: \_\_\_\_\_

Did the person who attended the delivery wash her hands with soap and water immediately prior to delivery?

Yes  No

Comments: \_\_\_\_\_

What was used to cut the cord? \_\_\_\_\_

Was the equipment cleaned and boiled before use? or Did it look new?

Yes  No

Comments: \_\_\_\_\_

How was the cord stump treated or dressed? \_\_\_\_\_

Comments: \_\_\_\_\_

## 5. What was the reason for the unclean procedure?

### D. Birth of Baby

Was the baby born in: Hospital?  Health Centre?  Home?

Other? \_\_\_\_\_

If the delivery was in a health facility, give the name and address: \_\_\_\_\_

Was the delivery attended by: Doctor?  Nurse?  Midwife?

Traditional birth attendant?  Other? \_\_\_\_\_

What is the name and address of the person who attended the delivery? \_\_\_\_\_

On what surface (e.g., cloth, uncovered table, dirt floor) was the baby delivered? \_\_\_\_\_

Did the surface look clean?

Yes  No

Comments: \_\_\_\_\_

Did the person who attended the delivery wash her hands with soap and water immediately prior to delivery?

Yes  No

Comments: \_\_\_\_\_

What was used to cut the cord? \_\_\_\_\_

Was the equipment cleaned and boiled before use? or Did it look new?

Yes  No

Comments: \_\_\_\_\_

How was the cord stump treated or dressed? \_\_\_\_\_

Comments: \_\_\_\_\_

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### G. Analysis

(to be answered by the interviewer)

Do not fill in this section until you have analysed the information. For guidelines on how to do this, see Guidelines for Investigating Suspected Cases of Neonatal Tetanus, Part 4.

1. Did this baby have neonatal tetanus?

Yes  No

2. Why was the baby not protected against neonatal tetanus?

a. The mother was not immunized.

b. The mother was immunized but the baby was not born within the period of protection provided by the last valid dose of TT.

c. The mother was immunized and the baby born within the period of protection, but there might be a programmatic failure.

3. What was the cause of the immunization problem? \_\_\_\_\_

4. What unclean delivery procedures were followed? \_\_\_\_\_

5. What was the reason for the unclean procedure? \_\_\_\_\_

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The fifth task in the analysis is to identify probable causes for the unclean procedures. For this, use the information from your discussions with the mother, or others who were present at delivery, about the birth of the baby (Section D of the Investigation Form). Your knowledge of the birth practices used in the community and the typical practices of the birth attendant in the case may also help you identify causes.

For example, the problem may have occurred because the birth attendant did not know how to perform clean deliveries or because she refuses to follow procedures that conflict with her own beliefs about delivering babies. It may be that there is no birthing house in the community so that babies are born at home, where it is difficult to keep things absolutely clean.

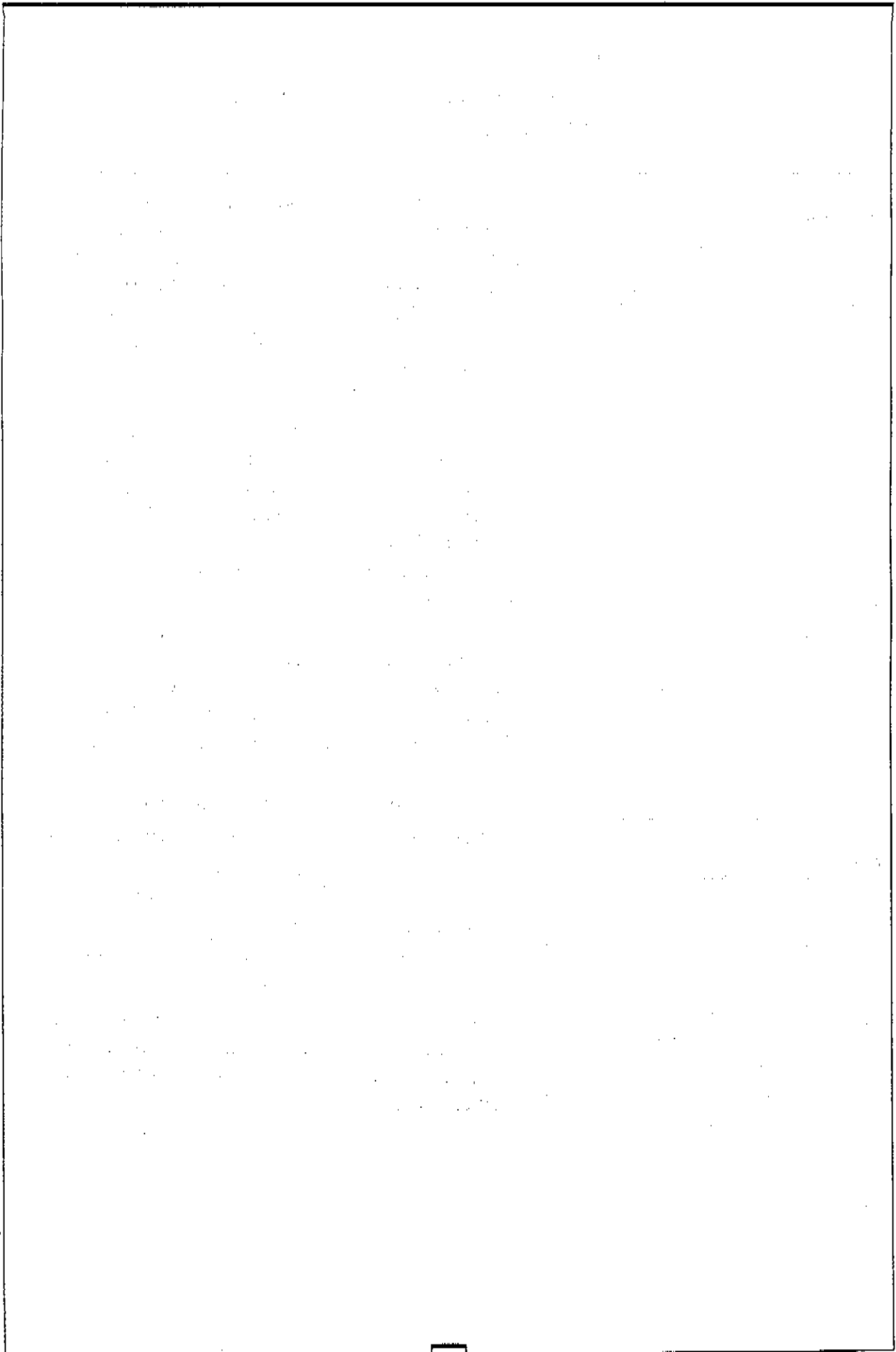
If you are analysing data from *more than one investigation*, a comparison of suspected cases may help you determine why the delivery was unclean. Study all of the completed Investigation Forms and ask yourself:

- Were the babies delivered in the same hospital?
- Were they delivered by the same birth attendant?
- Do the mothers belong to an ethnic group or community that uses harmful birth practices?

When you have finished this part of the analysis, record your findings on the Investigation Form, Section G, Question 5.

NOTE: You may never be able to identify all of the causes of a case from your investigations, but the more you find out, the better able you will be to prevent further cases.

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## 5. Planning Action

In Part 4, you identified major problems and their causes by analysing Investigation Form data. Now, you must decide what actions to take to prevent more cases of neonatal tetanus. When you have made these decisions, you will describe them in Section H of the Investigation Form.

Since babies get neonatal tetanus for two reasons, i.e., failure to properly immunize their mothers and failure to deliver the babies cleanly, the solutions that you select should address both problems. *Immunization, however, must be the focus of activity* because it is the surest way to protect a baby against neonatal tetanus. We can't guarantee that a baby will be born in a clean place or that attendants will use clean procedures; but, if her mother is immunized, the baby will be protected wherever she is born. Therefore, in planning you should focus on increasing, expanding, and improving immunization services.

**BEGIN BY IMMUNIZING THE MOTHER of the baby whose case you are investigating!**

The *training of birth attendants and health education* are also important components of any strategy to prevent NT. Training traditional birth attendants and others who use harmful and unclean practices will reduce mother and infant mortality *from all causes*. In addition, when they know the importance of TT immunizations, they will encourage their clients to get them.

And, do not forget health education. When neonatal tetanus is a problem, all members of the community must be taught that it can be prevented. Women, their husbands, relatives, and all health workers should be taught how they can contribute to its prevention.

In planning the preventive actions to be taken in your area, consider the following:

- a. *Concentrate on high risk areas and groups.* High risk areas are those in which a number of NT cases have occurred, harmful delivery procedures are commonly practised, or TT coverage is low. One of the highest risk groups is women who have already had one baby with neonatal tetanus. They are likely to have more.

Also, be aware of migrants, slum dwellers, and isolated rural groups that may not be reached by health services. These risk areas and groups should receive priority attention for immunizations.

*b. Act as soon as possible.* Begin some activities as soon as you can, e.g., holding immunization sessions in a community with a number of cases. Be sure to record these immunizations, even if temporary records must be replaced later.

Other activities that are relatively easy and inexpensive should also be implemented immediately.

At the same time, begin planning the activities that will take longer to implement because they require more approvals or are more expensive, e.g., making life-long TT immunization cards available for all women, increasing the target group to include all women of child-bearing age, or teaching people how to distinguish between good, harmless, and harmful delivery practices.

*c. Balance the need to collect more information with the need to act quickly.* You may need to find out more about a problem before you can solve it, e.g., finding out whether there has been a break in the cold chain that caused vaccine failure. But, do not spend time and resources on new data collection unless you cannot identify the cause of the problem from the data that you already have.

The last step before taking action is to set priorities and decide how to use your resources wisely. You should know *what* is to be done, *when*, *who* will do it, and with what *resources*. You should also decide how you will monitor these activities and what their impact is.

Involve all relevant health centre staff in the development of the plan. Ask for the advice of community members about aspects of the plan that directly pertain to them.

Finally, briefly describe the actions that should be taken in Section H of the Investigation Form and in the Monthly Surveillance Report. See Part 6 which follows.

## 6. Reporting

**R**eporting the results of completed investigations of suspected cases tells the district and other levels where and how cases are occurring and what is being done to prevent them.

### **1. Complete Sections G and H of the Case Investigation Form.**

If you have not already done so, answer the questions in Sections G and H of the Investigation Form, using the findings from your case analysis (see Part 4 of these guidelines) and the plans you have made to prevent cases in the future (Part 5).

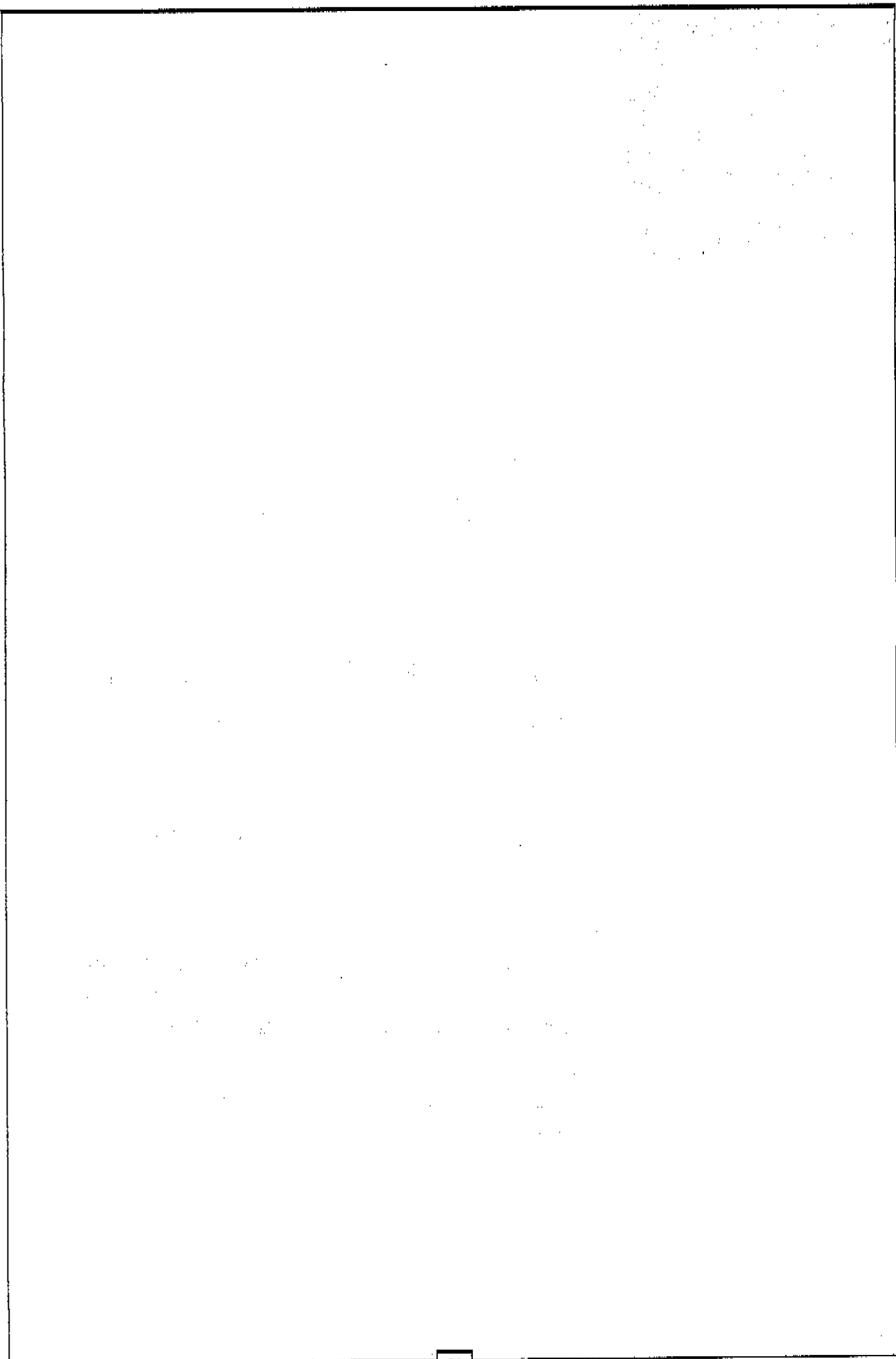
### **2. Complete the Monthly Surveillance Report.**

Make sure that neonatal tetanus cases (suspected, confirmed, discarded) are reported separately from other tetanus cases.

Include any conclusions about the NT cases and a summary of the actions that you have taken or that you plan to take, with target dates, in the appropriate sections of the Report.

### **3. Submit the Monthly Surveillance Report and a copy of all completed Investigation Forms for Suspected Cases to the district office.**

Include in the Report the number of suspected NT cases that have been confirmed through investigation as neonatal tetanus.



## 7. Giving Feedback about Results

Just as health workers must be involved in the planning of activities for which they are responsible, they need to know what the impact of those activities have been. For example, health centre workers should be informing the district about the progress being made on the implementation of plans; and the district, in turn, should be informing health centres about district-wide changes in the number of NT cases reported and other indicators of impact.

Similarly, you should give feedback to people in the communities that have had cases of neonatal tetanus on the results of your investigations and the actions taken.

Encourage the community to show its appreciation to the traditional birth attendants who participate in training and who perform clean and safe deliveries. Your health centre or district might consider giving some recognition, such as a certificate, to women who have received all five doses of tetanus toxoid.

In general, be aware of what is going on in your area and, as a routine part of your job, give information, encouragement, praise, and correction to health workers.



# Investigation Form for Suspected Cases of Neonatal Tetanus

**I**nstructions: Either circle the appropriate response, or record the answer in the blank space following each item.

Province: \_\_\_\_\_ Village: \_\_\_\_\_

Health Centre: \_\_\_\_\_

Date case reported: \_\_\_\_\_ Reported by: \_\_\_\_\_

Date of investigation: \_\_\_\_\_

Name and job title of investigator: \_\_\_\_\_

## **A.** **Family Information**

Family name: \_\_\_\_\_ Given name of mother: \_\_\_\_\_

Given name of baby: \_\_\_\_\_

Family address: \_\_\_\_\_

Date of birth of baby: \_\_\_\_\_ Sex: Male \_\_\_\_\_ Female \_\_\_\_\_

How long has the mother lived in the area? \_\_\_\_\_

If applicable, to what ethnic group does the family belong?

\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## **B. Immunization Status of Mother**

Was the mother immunized against tetanus:

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, did you see a record (e.g., a TT card) of the mother's tetanus toxoid immunizations?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, copy the dates of all TT immunizations reported:

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Does the mother remember getting any doses that are not recorded on the card?

Yes \_\_\_\_\_ No \_\_\_\_\_

How many doses? \_\_\_\_\_

When was each dose given? \_\_\_\_\_

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If the baby with NT is not the first child, what is the immunization status of the child born closest in time to this baby? \_\_\_\_\_

Where was the older child immunized? \_\_\_\_\_

Comments (If the mother did not get immunized, try to find out why):

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**C.**  
**Antenatal Care**

Did the mother receive antenatal care?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give location and dates (If dates cannot be remembered, give the number of visits):

\_\_\_\_\_

Did the mother visit a health facility for reasons other than antenatal care during this pregnancy?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give the reason for the visit, location, and dates: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## D. Birth of Baby

Was the baby born in: Hospital? \_\_\_\_\_ Health Centre? \_\_\_\_\_ Home? \_\_\_\_\_

Other? \_\_\_\_\_

If the delivery was in a health facility, give the name and address: \_\_\_\_\_

Was the delivery attended by: Doctor? \_\_\_\_\_ Nurse? \_\_\_\_\_ Midwife? \_\_\_\_\_

Traditional birth attendant? \_\_\_\_\_ Other? \_\_\_\_\_

What is the name and address of the person who attended the delivery? \_\_\_\_\_

On what surface (e.g., cloth, uncovered table, dirt floor) was the baby delivered? \_\_\_\_\_

Did the surface look clean?

Yes \_\_\_\_\_ No \_\_\_\_\_

Comments: \_\_\_\_\_

Did the person who attended the delivery wash her hands with soap and water immediately prior to delivery?

Yes \_\_\_\_\_ No \_\_\_\_\_

Comments: \_\_\_\_\_

What was used to cut the cord? \_\_\_\_\_

Was the equipment cleaned and boiled before use?; or Did it look new?

Yes \_\_\_\_\_ No \_\_\_\_\_

Comments: \_\_\_\_\_

How was the cord stump treated or dressed? \_\_\_\_\_

Comments: \_\_\_\_\_

## E. Symptoms

Date of onset of illness: \_\_\_\_\_

Did the baby suck and cry normally for the first two days of life?

Yes \_\_\_\_\_ No \_\_\_\_\_

If no, describe the symptoms. \_\_\_\_\_

\_\_\_\_\_

After the first two days of life, did the baby have a problem with sucking?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened. \_\_\_\_\_

\_\_\_\_\_

Did the baby become stiff?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened. \_\_\_\_\_

\_\_\_\_\_

Did the baby have convulsions?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened. \_\_\_\_\_

\_\_\_\_\_

Did the baby have "reactive" convulsions or seizures?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe what happened. \_\_\_\_\_

\_\_\_\_\_

Were there other symptoms?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, describe them. \_\_\_\_\_

\_\_\_\_\_

## F. Treatment and Outcome

Was the sick baby cared for in a health facility?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, give the facility's name and address. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

If yes, what diagnosis was given? \_\_\_\_\_

\_\_\_\_\_

Did the baby die?

Yes \_\_\_\_\_ No \_\_\_\_\_

If yes, on what date? \_\_\_\_\_

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## **G.** **Analysis (to be answered by the interviewer)**

Do not fill in this section until you have analysed the information. For guidelines on how to do this, see Guidelines for Investigating Suspected Cases of Neonatal Tetanus, Part 4.

1. Did this baby have neonatal tetanus?

Yes \_\_\_\_\_ No \_\_\_\_\_

2. Why was the baby not protected against neonatal tetanus?

a. The mother was not immunized.

b. The mother was immunized but the baby was not born within the period of protection provided by the last valid dose of TT.

c. The mother was immunized and the baby born within the period of protection, but there might be a programmatic failure.

3. What was the cause of the immunization problem? \_\_\_\_\_

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4. What unclean delivery procedures were followed? \_\_\_\_\_

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5. What was the reason for the unclean procedure? \_\_\_\_\_

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**H.**  
**Planning Action**  
**(to be answered by the interviewer)**

Describe the actions that should be taken to prevent similar cases in the future:

a. Through immunization. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. Through improved delivery practices. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Patient Register

Month: \_\_\_\_\_ Year: \_\_\_\_\_

Date of visit	Name and Address	Age	Reason for visit	Repeat visit?	Services provided	Was patient immunized with all required doses?* (e.g., all 3 doses of DPT or OPV)
2	Maria Falcon, Tomara	4 months	immunization		DPT2/OPV2	
2	Malikul Somtha, Tomara	10 months	measles		paracetamol & Vitamin A	no
2	Alaba Idris, Tomara	2 years	dysentary		ORS and antibiotics	
2	Halida Akrong, Bakul	7 months	malaria	✓	chloroquine DPT3/OPV3	
2	Teresa Garcia, Bakul	6 months	polio		referred to district hospital	no
2	Juan Moreno, Tomara	17 years	gonorrhoea	✓	antibiotics	
2	Kim Lwin, Efeson	3 years	respiratory illness		antibiotics	
2	Anna Eapen, Tomara	21 years	antenatal	3	routine antenatal and TT2	
2	Jai Narain, Efeson	4 years	chronic diarrhoea	3	antibiotics & ORS	
2	Tomas Gonzaliz, Efeson	18 months	malaria		chloroquine & measles immun.	
2	Obanu Lasiso, Bakul	11 months	measles and diarrhoea		Vitamin A, ORS, paracetamol	no
2	Oneta Samai, Efeson	25 years	antenatal		routine antenatal & TT3	
2	Carlos Gomez	1 week	immunization		BCG & OPV0	
2	Seued Alam, Tomara	6 months	immunization		DPT3/OPV3	

\* This column is completed only for patients with a vaccine-preventable disease, and only concerns the vaccine that is supposed to prevent the disease. The child must have been given the vaccine at least two weeks before the onset of disease to be considered "immunized". If the disease is Neonatal Tetanus, record the mother's immunization status for Tetanus Toxoid.,



# Monthly Surveillance Report

Health Facility: Nalabab Dates: From 1/Dec/90 to 31/Dec/90

Disease	Tally cases of disease	Total number of cases
Poliomyelitis		1
Diphtheria		0
Pertussis		3
Neonatal Tetanus*		1
Tetanus > 1 month		3
Measles	<del>    </del>	11
Tuberculosis		0

What are the possible explanations for increased/decreased number of cases, compared to last month? \*\*

Actions taken and/or recommendations: \*\*

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\*Refers to children less than one month of age.  
 \*\*Attach additional sheets if necessary.

# Monthly Surveillance Report

Health Facility: \_\_\_\_\_ Dates: From \_\_\_\_\_ to \_\_\_\_\_

Disease	Tally cases of disease	Total number of cases
Poliomyelitis		
Diphtheria		
Pertussis		
Neonatal Tetanus*		
Tetanus > 1 month		
Measles		
Tuberculosis		

What are the possible explanations for increased/decreased number of cases, compared to last month? \*\*

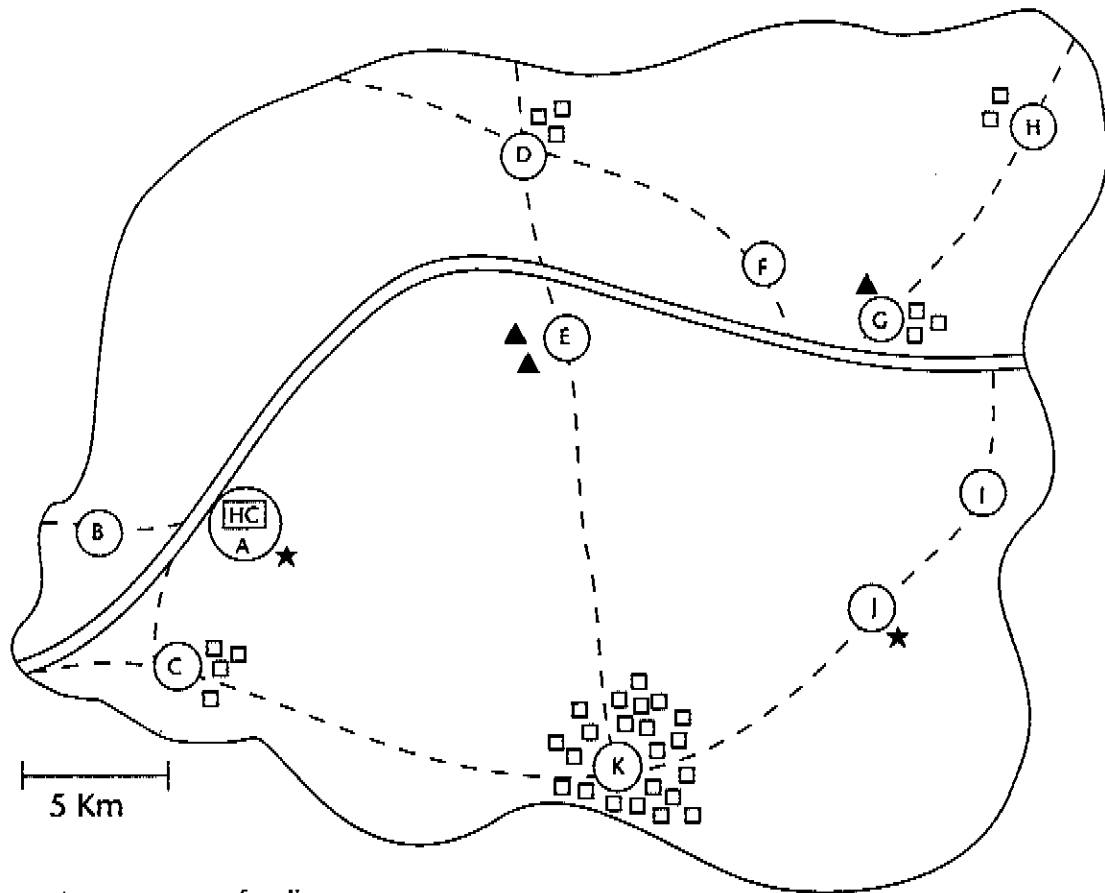
Actions taken and/or recommendations: \*\*

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

\*Refers to children less than one month of age.

\*\*Attach additional sheets if necessary.

# Area Served by a Health Centre

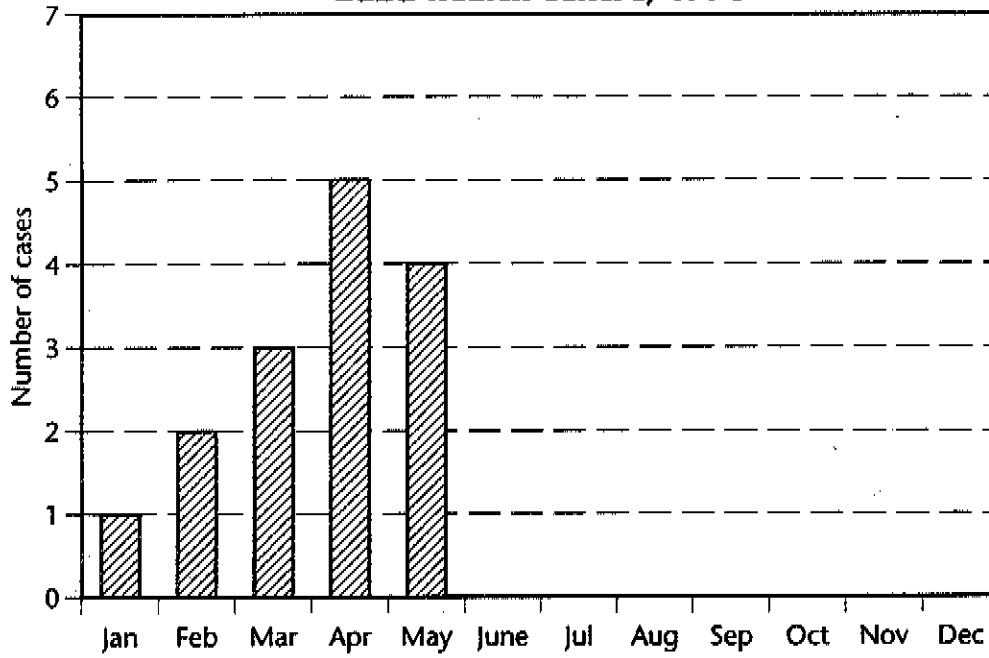


- ★ = one case of polio
- ▲ = one case of neonatal tetanus
- = one case of measles

- ==== Major highway
- - - - All-weather roads
- Village
- Health Centre

# Sample Disease Bar Chart

**Number of NT cases per month  
Babu health centre, 1990**



**Number of NT cases per month  
health centre, 19\_\_**

