

PN-ACB-048  
94689

**DEVELOPMENT OF INTEGRATED  
TECHNICAL GUIDELINES FOR ZAMBIA**

Bob Pond, M.D.

April 7-May, 3, 1997

BASICS Technical Directive: 000 ZA 01 029  
USAID Contract Number: HRN-6006-C-00-3031-00

## TABLE OF CONTENTS

ACRONYMS .....	v
EXECUTIVE SUMMARY .....	1
APPENDIX Draft Technical Guidelines for Child Health, STD, Tuberculosis and Water/Sanitation	
Part One: Child Health	
Nature and Extent of the Problem .....	1
Preventive and Promotive Messages .....	2
Management of the Sick Child at Home .....	3
Immunization .....	4
Nutrition (section now under development) .....	11
Management of the Sick Child, Age 2 Months Up to 5 Years .....	13
Management of the Sick Young Infant, Age 1 Week Up to 2 Months .....	31
Part Two: Sexually Transmitted Diseases	
Nature and Extent of the Problem .....	41
Preventive and Promotive Messages .....	42
Syndromic Approach to Management of STDs .....	43
Part Three: Tuberculosis	
Nature and Extent of the Problem .....	53
Preventive Interventions .....	53
Management of Tuberculosis at the Level of the Health Center .....	55
Part Four: Water Supply and Sanitation	
Nature and Extent of the Problem (section now under development) .....	63
Water Supply Options for Small Communities .....	64
Sanitation Options for Small Communities .....	66
Standards for Practice at the Health Center .....	68
Standards for Practice in the Community	
Surveying the Catchment Area of the Health Center .....	68
Community Mobilization and Health Education .....	69
Monitoring Water and Sanitation (section not under development) .....	70
Responding to a Cholera Outbreak .....	71

## ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
BASICS	Basic Support for Institutionalizing Child Survival
CboH	Central Board of Health
MCH/FP	Maternal and Child Health/Family Planning
MOH	Ministry of Health
USAID	United States Agency for International Development
UTH	University Teaching Hospital
WASHE	Water and Sanitation and Health Education (government agency)

## EXECUTIVE SUMMARY

The Central Board of Health (CBoH) of Zambia is in the process of producing integrated technical guidelines. This is a pocket-sized document of approximately 150 pages in length which will specify the standards of practice by health center staff for delivery of the six health thrusts: child health, STDs, tuberculosis, malaria, reproductive health (including maternal health and family planning) and water/sanitation. Once the guidelines have been widely reviewed, edited and field tested, DANIDA has agreed to pay to print up to 10,000 copies of the document for distribution to all staff at health center, hospital and district level.

To compile these guidelines, a working group was convened under the direction of Dr. Gavin Silwamba, the director of systems development of the CBoH. The working group includes the following members drawn from staff of the CBoH, the technical units of the Ministry of Health (MOH), the University Teaching Hospital (UTH) and the governmental agency known as WASHE (Water and Sanitation Health Education):

- Dr. Gavin Silwamba, Director of Systems Development, CBoH;
- Dr. K.B. Jensen, Senior Health Advisor, CBoH;
- Mr. P. Chifita, Librarian, CBoH;
- Mrs. R. Kalwani, MCH/FP Unit, MOH;
- Mrs. G. Sinyangwe, MCH/FP Unit, MOH;
- Mr. Y. Kabulaya, Deputy Chief Clinical Officer, MOH;
- Dr. E. Chomba, Department of Pediatrics, UTH;
- Prof. Bhat, Department of Pediatrics, UTH;
- Mr. J. Kamanga, Clinical Officer, UTH;
- Mrs. H. Nkoloma, WASHE;
- From April 7 - May 3 the group was joined by Dr. Bob Pond, a consultant with the USAID/BASICS Project.

The working group based the technical guidelines on already existing guidelines written and published by various technical units of the Ministry of Health. The following pages represent the draft of the guidelines as of May 12.

Plans for further development of the guidelines include the following:

- The MCH/FP unit of the MOH is drafting reproductive health guidelines.
- Dr. Jensen and Dr. Silwamba have been working with staff of the National Malaria Control Centre and Dr. Pandu Wijayaratne of the USAID-funded Environmental Health Project to write the chapter on malaria.
- Staff of the Zambian National Food and Nutrition Commission are working with a USAID-funded consultant, Dr. Adwoa Steel, to write a nutrition section for the child health chapter.

- Mr. Y. Kabulaya is working with Karen Romano of the USAID-funded, Project Concern International- administered AIDS prevention project to develop a chapter on AIDS.
- Mrs. Nkoloma is working with Dr. Wijayaratne and others to further develop the water/sanitation chapter.
- Various members of the working group are working on brief sections on additional health problems falling outside of the six health thrusts (eye infections, skin problems, sore throat, cholera, dental problems, leprosy, poisoning/injuries, adult pneumonia, bilharzia, worms).
- Mr. Michael Watkins, a consultant funded by the BASICS project, will assist with final editing, formatting, graphics and printing of the technical guidelines document.

A working draft of the technical guidelines is to be reviewed at a consensus building meeting on May 17. Thereafter, several hundred copies of the document will be printed up and distributed to staff in 12 districts as part of the efforts to field test the newly designed health management information system. After several weeks, feedback will be sought from health staff on the utility and technical soundness of the technical guidelines. The document will be further revised based upon the feedback received before several thousand copies of the final draft will be printed and widely distributed. During the training to be provided at the end of 1997/beginning of 1998 to all government health workers on the new HMIS, at least one day will be devoted to orienting health workers to the content and structure of the guidelines document. Thus, the integrated technical guidelines offer a very promising opportunity to update large numbers of Zambian health workers on the standards for delivery of key services.

**APPENDIX**

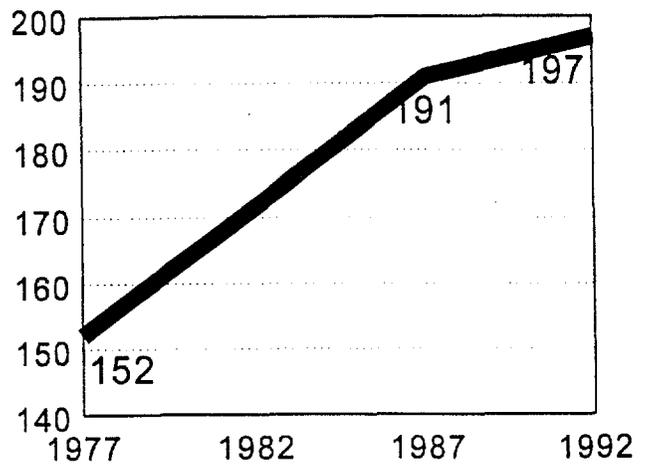
# CHILD HEALTH

As shown by the graph to the right, child mortality in Zambia has risen significantly in the last two decades. Almost 100,000 Zambian children under five years of age die each year.

The pie chart below shows that five leading killers account for more than 75% of deaths: malaria, diarrhoea, pneumonia, malnutrition and anaemia.

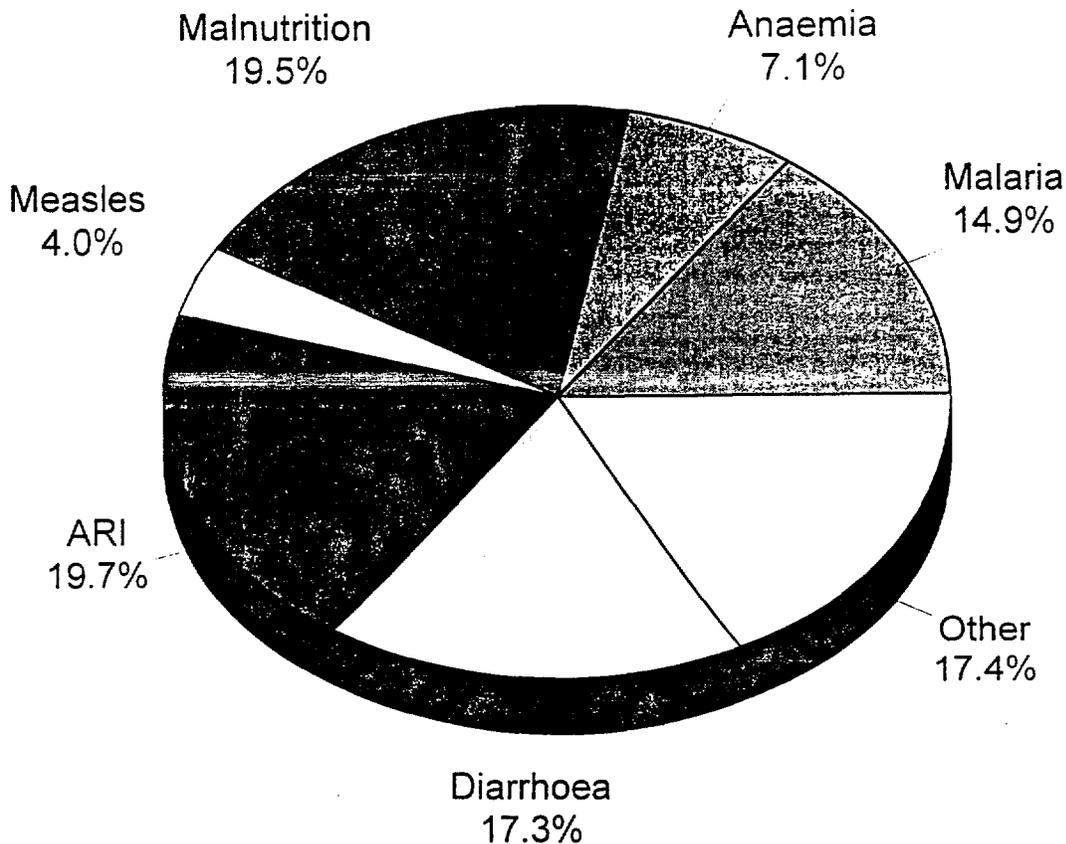
This chapter provides the guidelines for the key interventions that will help bring down child mortality in Zambia.

### Zambian Under-Five Mortality Rate



Source: Zambia D.H.S.

### Causes of 15,000 hospital deaths\* among Zambian children less than 5 years old, 1992



\* Excluding perinatal deaths

## Preventive and Promotive Interventions

### DIARRHOEAL DISEASES

Advise families to

- ▶ Breastfeed babies exclusively for the first 6 months
- ▶ Get water from the cleanest possible source. Consider boiling water if unsure that it is safe.
- ▶ Prepare and handle food safely -- cover the food after preparation and eat it when it is fresh
- ▶ Wash hands before eating and after going to the toilet
- ▶ Pass stool in a clean latrine or toilet
- ▶ Come on time for all the recommended immunizations including the measles immunization

### ACUTE RESPIRATORY INFECTIONS

Advise families to

- ▶ Come on time for all the recommended immunizations
- ▶ Improve the ventilation in rooms where they cook or heat with fires
- ▶ Keep young children warm and covered from drafts

### MALARIA

- ▶ Bednets and curtains impregnated each 6 months with insecticide are practical and effective
- ▶ Environmental control measures (slashing of weeds, elimination of danbos and other breeding sites, spraying with insecticides, spreading larvicide on breeding sites) are not effective unless done in a very intensive and systematic manner. FOR PREVENTION, HEALTH STAFF SHOULD CONCENTRATE THEIR EFFORTS ON PROMOTION OF BEDNETS

### ANAEMIA

Advise families to

- ▶ Continue breast-feeding for as many months as possible
- ▶ Feed children larger amounts of their usual foods. If children eat enough to satisfy their energy needs then they are more likely to also get enough iron.
- ▶ Feed children foods that are rich in Vitamin C which helps with absorption of iron from the diet. Suitable foods include fruits, cabbage and tomatoes.
- ▶ Occasionally give their children at least some meat, fish, poultry and/or blood products. These foods contain iron and they help promote the absorption of iron from vegetables.
- Facility-based preventive measures include routine deworming of children.

### MALNUTRITION

Advise families to

- ▶ Breastfeed exclusively for the first 6 months of a child's life
- ▶ Give children good complementary foods starting when they are 6 months of age
- ▶ Make extra effort to feed the child during and after illness

Ideal child feeding practices are summarized in the FOOD chart.

- **Guidelines for growth promotion** (growth monitoring, assessment of feeding and counseling on feeding) are provided in the section on Growth Promotion
- ▶ **Guidelines for vitamin A supplementation** are provided in a separate section (Children 6 months to 6 years of age should receive vitamin A supplements every 6 months)

### IMMUNIZATION

- **Guidelines for immunization** are provided in a separate section

## Management of the Sick Child at Home

### DIARRHOEA

Teach families to

- ▶ Give extra fluids at home at the onset of diarrhoea (see Plan A for details)
- ▶ Make extra effort to feed the child during and after diarrhoea. This will prevent malnutrition. Give an extra meal a day for two weeks after the attack of diarrhoea.
- ▶ Seek help from a trained health worker if the child has diarrhoea for more than a week, bloody diarrhoea, many frequent stool, frequent vomiting or is drinking poorly

### ACUTE RESPIRATORY INFECTIONS

Teach families to

- ▶ Soothe the throat and relieve the cough with a safe and inexpensive remedy
- ▶ Seek help from a trained health worker if the child develops fast or difficult breathing

### MALARIA

Teach families to

- ▶ Treat children appropriately with chloroquine as soon as they develop fever
- ▶ Seek help from a trained health worker if the fever persists 24 hours after treatment or if the fever returns

### ANY SICK CHILD

Teach families to

- Breastfeed more frequently and for longer at each feed
- Increase other fluids such as soup, rice water or clean water
- Seek help from a trained health worker if the child is not able to drink or breastfeed or becomes sicker

# IMMUNIZATION

## INTRODUCTION

Immunization is one of the most important of all public health activities. Children can be immunized against **six target diseases: measles, polio, diphtheria, whooping cough (also called pertussis), tetanus, and tuberculosis**. The unborn child can be protected against neonatal tetanus if the mother is immunized with tetanus toxoid (TT).

### Target groups for immunization:

- ◆ **children 0 to 24 months** (infants 0 to 11 months are the highest priority)
- ◆ **women of childbearing age** (especially pregnant women)

### Schedule for childhood immunization

<u>Vaccine</u>	<u>Minimum age at first dose</u>	<u>Number of doses</u>	<u>Minimum interval between doses</u>
BCG	Birth	1	--
DPT	6 weeks	3	4 weeks
Polio	Birth ("OPV-0") 6 weeks	1 3	-- 4 weeks
Measles	9 months	1	--

Multiple vaccines, for instance BCG, DPT, OPV and Measles can be given on the same visit.

### Schedule for immunization of women with tetanus toxoid (TT)

All women of childbearing age (15 to 45 years old) should be given TT at every contact with a health facility for any reason.

TT1	As early as possible
TT2	At least 4 weeks after TT1
TT3	At least 6 months after TT2
TT4	At least 1 year after TT3
TT5	At least 1 year after TT4

If a woman has documents showing that she has received 3 doses of DPT during childhood, she can be considered as having already received 2 TT injections of the required 5.

Once a woman has received 5 documented injections of TT she has lifelong immunity and does not need any more doses.

### Seize every opportunity to immunize children and women

- ◆ Any health facility with a refrigerator should offer immunizations every day

- ◆ The immunization card of children and women of childbearing age should be checked whenever they come to the health facility.
- ◆ Think of immunizing a child or a woman even when she or he has come for an illness or another reason.
- ◆ Do not hesitate to open a vial even for a single eligible child or women.

### Contraindications to immunization

In the past some health workers thought minor illness was a reason to not immunize the child. They sent sick children away and told the caretakers to bring them back when the children are well. This is a bad practice because it delays immunization.

There are only *two* situations which are contraindications to immunization:

- ◆ Do not give BCG to a child known to have AIDS.
- ◆ Do not give DPT 2 or DPT 3 to a child who has had convulsions or shock within 3 days of the most recent dose.

In all other situations, here is a good rule to follow:

*There are no contraindications to immunization of a sick child  
if the child is well enough to go home.*

If a child is going to be referred, do not immunize the child before referral.

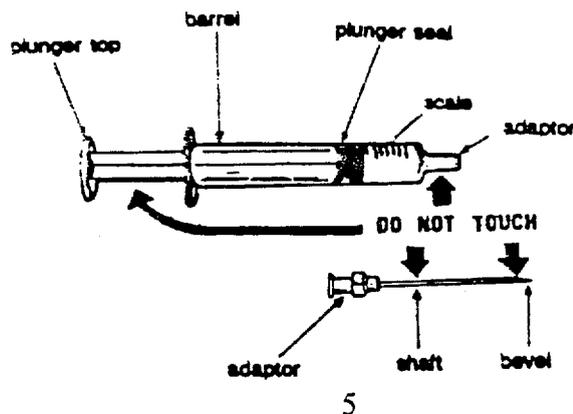
## HOW TO ADMINISTER THE VACCINES

### How to mix dried vaccines (BCG and Measles) with water for injection (diluent)

- ◆ Check the volume of diluent that you must mix with the vaccine.
- ◆ Use an 18 gauge needle to draw up the diluent into a 5 ml mixing syringe.
- ◆ Open the vaccine container then inject the diluent into the container.
- ◆ Mix vaccine and diluent by withdrawing vaccine and diluent slowly into the syringe and then injecting it back.

### Avoid abscesses and spread of HIV and hepatitis

- ◆ Syringes and needles must be properly sterilized and kept in a sterile covered container (see the section on Sterilization )
- ◆ Use sterile forceps to take syringes and needles out of the container, to put the plunger into the barrel of the syringe and to put the needle onto the syringe;
- ◆ Don't touch with your hands the plunger, the tip of the syringe or the shaft of the needle.



- ◆ Use a separate syringe and a separate needle with each child
- ◆ [Insert here policy on reuse of needles and syringes]
- ◆ Before giving an injection clean the skin with antiseptic or clean water

### Different kinds of injections

- ◆ Intradermal injection goes into the top layer of skin. Hold the syringe and needle along the surface of the skin. With the bevel facing up, insert just the tip of the needle and a little bit more. At the injection site there should be a flat topped swelling in the skin, like a mosquito bite, with very small pits.
- ◆ Subcutaneous (SQ) injection goes just below the skin. Pinch up the skin. The needle should go in sloping; not straight down.
- ◆ Intramuscular (IM) injection goes deeply into the muscle. Stretch the skin flat between your finger and thumb. Quickly push the needle straight down through the skin between your fingers. Go deep into the muscle.

### How to administer the vaccines

<u>Vaccine</u>	<u>Syringe</u>	<u>Needle</u>	<u>Dose</u>	<u>Route</u>	<u>Site</u>
BCG	0.1 ml	26 guage	0.05 ml	intradermal	left upper arm
DPT	0.5 ml	22 guage	0.5 ml	IM	outer side of the middle of the thigh
Polio	--	--	2 to 3 drops	orally	(in the mouth)
Measles	0.5 ml	22 guage	0.5 ml	SQ	outer side of the upper arm
TT	0.5 ml	22 guage	0.5 ml	IM	outer side of the upper arm

### Tell the caretaker or the woman that there may be reactions to the vaccine

- ◆ BCG produces a local sore which heals without treatment in 2-3 months leaving a scar.
- ◆ DPT may cause a fever that stops within one day
- ◆ Measles vaccine may cause a fever for 1 to 3 days starting a week after vaccination. Sometimes there is a mild measles rash.
- ◆ TT may cause pain, redness and swelling for a couple of days at the injection site.

Reassure the caretaker or the woman that these reactions are not serious and need no treatment. If the caretaker wants to, she can give the child some paracetamol.

### RECORD KEEPING

- ◆ An immunization card should be issued to every woman and every child in the catchment area of your health facility.
- ◆ The immunization card of children and women of childbearing age should be checked whenever they come to the health facility.
- ◆ If the immunization card gets lost, issue a new one, filling in the information that the caretaker or the woman can remember about previous immunizations.
- ◆ Each immunization should be recorded on the child's or woman's immunization card. TT doses should also be recorded on a woman's antenatal card.

## HEALTH EDUCATION

Community partnership is essential to communicate the following:

- ◆ Diseases like measles, tetanus and polio can be prevented.
- ◆ Vaccines are effective in preventing these diseases.
- ◆ Who in the community should be immunized
- ◆ When and where immunization is available
- ◆ Infants should be brought 4 times for immunizations
- ◆ Woman of childbearing age should also be immunized several times
- ◆ The importance of receiving the complete course of immunizations
- ◆ The side effects which may occur and what is to be done about them.

## THE COLD CHAIN IS...

- ◆ ... a **chain of equipment** such as airplanes, trucks, refrigerators, cold boxes, etc... that must be used to keep the vaccines at the proper cold temperature from the factory until it is injected into patients.
- ◆ ... a **chain of people** are responsible for the vaccine from the time it is made in the factory until our people meet it at Lusaka International Airport until it is distributed to various cold storage facilities until it reaches the health worker who will vaccinate their people.

*Both the people and the equipment must work properly for the vaccine to be effective.*

## How to maintain a refrigerator

### Daily

- ◆ Check and record the temperature twice daily. The main compartment should have a temperature between 4<sup>o</sup> and 8<sup>o</sup> Centigrade.
- ◆ Put a small bottle or cup of water in the freezer and check daily to be sure it is solid ice
- ◆ For a parafin refrigerator, add fuel to the fuel tank to keep it 3/4 full.
- ◆ Check the flame to be sure it is blue, burning evenly and not smoking.

### Weekly

Defrost once a week or whenever the ice has covered the metal and you cannot see it anymore. Never let the ice get so hard that you cannot get out the vaccines easily.

- ◆ First, move your vaccines into a cold box with ice packs
- ◆ Then, turn the refrigerator off.

### Occasionally (for a parafin refrigerator)

- ◆ Clean the chimney
- ◆ Level the wick

For instructions, refer to the E.P.I. Manual

## Store vaccines properly in the refrigerator

- ◆ Whenever possible, measles and polio vaccines should be stored frozen. Otherwise, these vaccines should be stored at 4<sup>o</sup> to 8<sup>o</sup> C
- ◆ DPT, TT and diluent should never be frozen. Store them at 4<sup>o</sup> to 8<sup>o</sup> C
- ◆ Don't allow anyone to use the vaccine refrigerator to store food or drinks, even water!

### **What to do if you find that your refrigerator has gotten warm**

If you find that the temperature in your refrigerator has risen above  $+8^{\circ}\text{C}$ , you will need to take measures:

1. You have to try to establish what went wrong in the refrigerator and to reduce the temperature as soon as possible.
2. You need to take action regarding the vaccines
  - ◆ Polio vaccine-- if the temperature has been less than  $+20^{\circ}\text{C}$  for less than 24 hours you can use it. Otherwise, discard it.
  - ◆ BCG, DPT and Measles vaccines-- if temperature has been less than  $+20^{\circ}\text{C}$  for less than 1 week you can use the vaccine. Otherwise, discard it.
  - ◆ TT vaccine-- if temperature has been less than  $25^{\circ}\text{C}$  for less than one month you can use the vaccine. Otherwise discard it.

### **STERILIZATION OF SYRINGES AND NEEDLES**

In order to avoid abscesses and spreading of infections such as HIV and hepatitis you will have to make sure that the syringes and needles used are sterile.

#### **Clean the instruments first**

- ◆ You must clean the instruments before you can sterilize them. Unless you clean them first, steam and boiling may not kill all the microorganisms on them.
- ◆ Clean your syringes and needles by drawing clean water in and out several times.
- ◆ Separate the needle, plunger and barrel to soak in clean water.
- ◆ Check the needles for bluntness and barbs.  
If the needle is blunt, sharpen it unless it is so worn that it should be discarded.

#### **Sterilize the instruments with a steam sterilizer**

- ◆ The best way to sterilize is with a steam sterilizer. This is because the temperature inside a steam sterilizer is higher than the temperature of boiling water.
- ◆ Heat the steam sterilizer for a full 20 minutes after the steam starts coming
- ◆ Open the steam sterilizer only when you are ready to immunize.

#### **... or, if you don't have a steam sterilizer, sterilize in a boiling pan**

- ◆ Separate the syringe plungers from the barrels and the needles before boiling them
- ◆ There should be at least 2 cm deep of water covering instruments.
- ◆ Put the cover on the pan. Without a cover the instruments won't get properly sterilized.
- ◆ Boil the instruments for at least 20 minutes, otherwise they won't get properly sterilized.
- ◆ Do not put any more instruments into the pan after it starts to boil.  
If you do, you must start counting the 20 minutes all over again.

### **PLANNING OUTREACH**

Health staff travel by vehicle (e.g district MCH teams) or on foot/by bicycle (e.g. health centre staff) to set up temporary sites near to remote communities for outreach provision of immunization services. Each health centre should plan outreach immunization sessions in such a way as to provide reasonable access to immunization services to all communities in their catchment area at least once each 3 months. Outreach services are needed for those communities living more than 12 km from a health facility.

15

### **Community involvement in planning outreach**

- ◆ Representatives from the target communities should be involved in planning the schedule and the location for outreach sessions.
- ◆ Try always to go to the same place, at the same time and on the same day of the month/week to help people remember to come.
- ◆ If an emergency arises, someone must go to inform the leaders and the mothers why you cannot be there, apologize to them and schedule for another time.

### **What equipment and supplies to take for an outreach session**

- ◆ Injection equipment: sterilizer or boiling pan with sterile syringes, needles and forceps
- ◆ Container for used syringes and needles
- ◆ Plastic cup for holding ice to stand vaccines in
- ◆ Stationery: children's clinic cards, tally sheets
- ◆ Cold box with ice-packs, thermometer, vaccine and diluent.
- ◆ If you are expecting fewer than 30 children to attend, take 2 vials of each type of vaccine (The second vial is for reserve)
- ◆ For 30 to 50 children you will need 3 vials.

### **Keeping vaccines cold during outreach**

- ◆ Pack cold boxes properly with ice-packs on the bottom, on the sides and on top. At least 1/4 of what is in the cold box must be frozen ice-packs.
- ◆ Put the vaccines, diluent and thermometer in the middle.
- ◆ If available, place on top of the vaccines a small plastic bag of ice
- ◆ Put newspaper or cardboard around the DPT and TT so they do not freeze.
- ◆ Close the lid tightly and open the box as few times as possible.
- ◆ Keep the cold box in a shady place.
- ◆ Do not take vaccines from the cold box before children arrive at the outreach site.
- ◆ Do not mix dried vaccine with diluent before a child is ready for the vaccine.
- ◆ Stand opened vaccines in a cup with ice or on an ice-pack while you immunize.
- ◆ Once you have mixed up your measles vaccine and have it in a syringe, you must use it within ½ hour or it must be thrown away.
- ◆ Any vaccine that has been opened must be used that day or thrown away.
- ◆ Check the temperature in the cold box at the end of the outreach visit --  
If the cold box has gotten warm, follow the directions noted above in the section "What to do if you find that your refrigerator has gotten warm"
- ◆ If you return vaccines to the refrigerator, place them in a special place marked "returns". Use the "returns" first during the next immunization session. Vaccines that have been in and out of the refrigerator more than 3 times should be thrown away.

## **EVALUATION AND MONITORING**

The purpose of evaluation is to know whether goals have been achieved and what needs to be done in the future to improve the programme.

### **Monitor morbidity and mortality from the immunizable diseases**

- ◆ Register all children who come to your clinic with any of the immunizable diseases.

- ◆ Check the immunization status of these children:
  - \* Was the child immunized, but the vaccine failed to protect the child?
  - \* Did the mother fail to bring the child for immunization?
  - \* Did health staff miss an opportunity to immunize the child on a previous visit?
- ◆ Compare the number of children with immunizable diseases this month with the number of children with immunizable diseases during the same month previous years.  
Is the number of cases increasing or decreasing?

### **Monitor coverage with the Immunization Monitoring chart**

- ◆ Calculate your monthly target for children less than one year of age:  
Multiply the population of your catchment area by 0.00417 (1/12 of 5%)
- ◆ Fill in your monthly targets on the left hand side of the chart:
  - \* write "0" in the bottom space;
  - \* move up one space and write the number for one month's target;
  - \* continue to move up one space at a time. each time adding one month's target to the previous monthly target number;
  - \* when you reach the top space, fill in the number for twelve months. that is the yearly target.
- ◆ Write the months of the year along the bottom of the chart.
- ◆ Fill in the number of doses you have given in the spaces underneath the chart. There are spaces to record the numbers for three different types of vaccine. For example, you can use one chart for DPT1, DPT2 and DPT3. You will need another chart for OPV1, OPV2 and OPV3 and yet another chart for BCG and Measles vaccines.
- ◆ For each vaccine, there are two rows of spaces. In the top row you should fill in the number of doses you have given in that particular month. In the bottom row write in the cumulative total, that is, the total number of doses that you have given of that vaccine so far this year.
- ◆ Each month, for each vaccine, plot the cumulative total on the chart.  
After some months, join up the dots.

### **Interpret the Immunization Monitoring chart**

- ◆ On the right hand side of the chart is the percentage scale. This shows the coverage you have achieved as a percentage of the yearly target.
- ◆ Running across the chart are four dashed lines: one for 25%, one for 50%, one for 75% and one for 100%. These are called the *% coverage lines*. The lines rise (from zero at the beginning of the year) showing the growing number of children who get immunized as the year progresses.
- ◆ See which of the *% coverage lines* your own cumulative total line is near. That will tell you approximately what percentage of your target population you are immunizing as the year passes.
- ◆ If you are reaching less than 50% of your target, your programme is not at all successful and must try to find out the reasons:
  - \* Are your sessions easy and pleasant to attend? Are they held regularly and at a good time? Is the site accessible?
  - \* Talk with representatives from the community to find out if they understand the importance of immunization and if they have any suggestions for how to improve attendance at immunization sessions.
  - \* Discuss the problem with clinic and district staff and decide what can be done to improve immunization coverage.

17

[Insert here guidelines for **Growth Promotion**

Growth monitoring; and  
Feeding assessment and counseling (including the FOOD Box)

then insert here guidelines for **Vitamin A Supplementation**]

# ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

## INTRODUCTION

A mother brings her sick child to the clinic for a particular problem or symptom. If you only assess the child for that particular problem or symptom, you might overlook other signs of disease. The child might have pneumonia, diarrhoea, malaria, measles, or malnutrition. These diseases can cause death or disability in young children if they are not treated.

Included in these guidelines are two charts that describe how to assess and classify sick children so that signs of disease are not overlooked. One chart is for management of the child who is 2 months up to 5 years of age. The second chart is for management of the infant who is 1 week up to 2 months. The approaches illustrated in these charts are based upon the practices taught in the course on Integrated Management of Childhood Illness (IMCI) that is now taught in Zambia. The approaches shown are simplified compared to the IMCI approach. Health workers who have been taught in IMCI should continue to practice the full IMCI approach as it is preferable.

## GOOD COMMUNICATION IS ESSENTIAL--

### Start by asking the mother what the child's problems are

An important reason for asking this question is to open good communication with the mother. Good communication with the mother or caretaker is essential if you want to get reliable information and if you want the mother to understand how best to care for the child at home. For good communication:

- **Listen carefully to what the mother tells you.** This will show her that you are taking her concerns seriously.
- **Use words the mother understands.** If she does not understand the questions you ask her, she cannot give the information you need to assess and classify the child correctly.
- **Give the mother time to answer the questions.** For example, she may need time to decide if the sign you asked about is present.
- **Ask additional questions when the mother is not sure about her answer.** When you ask about a main symptom or related sign, the mother may not be sure if it is present. Ask her additional questions to help her give clearer answers.

*On the next 4 pages is the chart for management of the sick child age 2 months up to 5 years. Following the chart is an explanation of each of the steps summarized in the chart.*

20

# ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

## CHECK FOR GENERAL DANGER SIGNS

### ASK

- "Is the child able to drink or breastfeed?"
- "Does the child vomit everything?"
- "Has the child had convulsions?"

### LOOK

- See if the child is lethargic or unconscious

A child with any danger sign needs **URGENT** attention.  
Complete the assessment immediately so referral is not delayed.

## CLASSIFICATION

### THEN ASK, "Does the child have cough or difficult breathing?"

#### IF YES, ASK

- "For how long?"

#### LOOK, LISTEN, FEEL

- Count the breaths in one minute
- Look for chest indrawing
- Listen for stridor

} CHILD  
MUST BE  
CALM



<b>If the child is:</b>	<b>Fast breathing is:</b>
2 months up to 12 months	50 breaths per minute or more
12 months up to 5 years	40 breaths per minute or more

<ul style="list-style-type: none"> <li>• Any general danger sign or</li> <li>• Chest indrawing or</li> <li>• Stridor</li> </ul>	<b>SEVERE PNEUMONIA</b>
<ul style="list-style-type: none"> <li>• Fast breathing</li> </ul>	<b>PNEUMONIA</b>
<ul style="list-style-type: none"> <li>• No signs of pneumonia</li> </ul>	<b>COLD</b>

**THEN ASK, "Does the child have diarrhoea?"**

<p><b>IF YES, ASK:</b></p> <ul style="list-style-type: none"> <li>• "For how long?"</li> <li>• "Is there blood in the stool?"</li> </ul>	<p><b>LOOK AND FEEL:</b></p> <ul style="list-style-type: none"> <li>• Look at the child's general condition: Is the child:                     <ul style="list-style-type: none"> <li>Lethargic or unconscious?</li> <li>Restless and irritable?</li> </ul> </li> <li>• Look for sunken eyes.</li> <li>• Offer the child fluid. Is the child:                     <ul style="list-style-type: none"> <li>Not able to drink or drinking poorly?</li> <li>Drinking eagerly, thirsty</li> </ul> </li> <li>• Pinch the skin of the abdomen. Does it go back:                     <ul style="list-style-type: none"> <li>Very slowly (longer than 2 seconds)?</li> <li>Slowly?</li> </ul> </li> </ul>
--	--

**CLASSIFY for DEHYDRATION**



Two of the following signs: <ul style="list-style-type: none"> <li>• Lethargic or unconscious</li> <li>• Sunken eyes</li> <li>• Not able to drink or drinking poorly</li> <li>• Skin pinch goes back very slowly</li> </ul>	<b>SEVERE DEHYDRATION</b>
Two of the following signs: <ul style="list-style-type: none"> <li>• Restless and irritable</li> <li>• Sunken eyes</li> <li>• Drinks eagerly, thirsty</li> <li>• Skin pinch goes back slowly</li> </ul>	<b>SOME DEHYDRATION</b>
Not enough signs to classify as dehydration	<b>NO DEHYDRATION</b>

if diarrhoea 14 days or more

• Dehydration present	<b>SEVERE PERSISTENT DIARRHOEA</b>
• No dehydration	<b>PERSISTENT DIARRHOEA</b>

if blood in stool

• Blood in the stool	<b>DYSENTERY</b>
----------------------	------------------

22

**THEN ASK, "Does the child have fever?"**

**IF YES, ASK:**

- "For how long?"
- If more than 7 days, "Has fever been present every day?"

**LOOK AND FEEL:**

- Look and feel for stiff neck
- Look for generalized rash
- Look for cough, runny nose, red eyes



<ul style="list-style-type: none"> <li>• Any general danger sign or</li> <li>• Stiff neck</li> </ul>	<b>VERY SEVERE FEBRILE DISEASE</b>
<ul style="list-style-type: none"> <li>• Fever (by history or feels hot or temperature 37.5°C or above)</li> </ul>	<b>MALARIA</b>

**if generalized rash and one of these: cough, runny nose or red eyes**



<ul style="list-style-type: none"> <li>• Generalized rash, and</li> <li>• One of these: cough, runny nose or red eyes</li> </ul>	<b>MEASLES</b>
--	----------------

**THEN ASK, "Does the child have an ear problem?"**

**IF YES, ASK:**

- Is there ear pain?
- Is there ear discharge? If yes, for how long?

**LOOK AND FEEL:**

- Look for pus draining from the ear



<ul style="list-style-type: none"> <li>• Pus draining from the ear for less than 14 days, OR</li> <li>• Ear pain.</li> </ul>	<b>ACUTE EAR INFECTION</b>
<ul style="list-style-type: none"> <li>• Pus draining from the ear for 14 days or more</li> </ul>	<b>CHRONIC EAR INFECTION</b>
<ul style="list-style-type: none"> <li>• No ear pain, AND</li> <li>• No pus draining from ear</li> </ul>	<b>NO EAR INFECTION</b>

## THEN CHECK FOR MALNUTRITION AND ANAEMIA

### LOOK AND FEEL:

- Look for visible severe wasting
- Look for palmar pallor. Is it:  
Severe palmar pallor?  
Some palmar pallor?
- Look for oedema of both feet



<ul style="list-style-type: none"> <li>• Visible severe wasting or</li> <li>• Severe palmar oedema or</li> <li>• Oedema of both feet</li> </ul>	<b>SEVERE MALNUTRITION OR SEVERE ANAEMIA</b>
<ul style="list-style-type: none"> <li>• Some palmar pallor</li> </ul>	<b>ANAEMIA</b>
<ul style="list-style-type: none"> <li>• No visible severe wasting, and</li> <li>• No oedema, and</li> <li>• No pallor</li> </ul>	<b>NO SEVERE MALNUTRITION AND NO ANAEMIA</b>

## THEN ASSESS THE CHILD'S FEEDING

## THEN ASSESS OTHER PROBLEMS

## THEN CHECK THE CHILD'S IMMUNIZATION STATUS

IMMUNIZATION SCHEDULE:	AGE	VACCINE
	Birth	BCG OPV-0
6 weeks	DPT-1 OPV-1	
10 weeks	DPT-2 OPV-2	
14 weeks	DPT-3 OPV-3	
9 months	Measles	
15 months	DPT-4 OPV-4	

## THEN ASSESS THE CHILD'S VITAMIN A SUPPLEMENTATION STATUS

Give a single dose of vitamin A every six months to every child 6 months to 6 years of age

## **TREAT THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS**

### **1. SEVERE PNEUMONIA OR VERY SEVERE DISEASE**

- Give first dose of cotrim (or chloramphenicol if child cannot take oral medicines)
- Refer urgently to the hospital

### **2. PNEUMONIA**

- Give cotrim or amoxycillin for 5 days
- Follow-up in 2 days

### **3. COLD**

- If coughing more than 3 weeks, refer for assessment
- Advise the mother on a safe remedy for cough and sore throat
- Follow-up in 5 days if not improving

### **4. SEVERE DEHYDRATION**

- If child has no other severe classification, give fluids for severe dehydration (Plan C)
- If child has another severe classification, refer urgently to the hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breast-feeding.
- If child is 2 years or older and there is cholera in your area, give antibiotic for cholera.

### **5. SOME DEHYDRATION**

- If child has no severe classification, give fluid and food for some dehydration (Plan B)
- If child has a severe classification, refer urgently to the hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breast-feeding.

### **6. NO DEHYDRATION**

- Give fluid and food to treat diarrhoea at home (Plan A).

### **7. SEVERE PERSISTENT DIARRHOEA**

- If child has no other severe classification, treat the dehydration before referral.
- Refer to hospital

### **8. PERSISTENT DIARRHOEA**

- Advise the mother on feeding a child who has PERSISTENT DIARRHOEA.
- Follow-up in 5 days.

### **9. DYSENTERY**

- Treat for 5 days with an appropriate oral antibiotic
- Follow-up in 2 days

## TREAT THE SICK CHILD, 2 MONTHS UP TO 5 YEARS (continued)

### 10. VERY SEVERE FEBRILE DISEASE

- Give a first dose of quinine for severe malaria
- Give a first dose of an appropriate antibiotic (cotrim or chloramphenicol)
- Treat the child to prevent low blood sugar
- Give one dose of paracetamol in clinic for fever of 38.5°C or above
- Refer urgently to the hospital

### 11. MALARIA

- Treat with chloroquine. if the child has not already been treated with chloroquine.
- If the child has already been adequately treated with chloroquine during this episode of fever, treat with sulfa-pyrimethamine.
- Give one dose of paracetamol in clinic for fever of 38.5°C or above
- Follow-up in 2 days if fever persists
- If fever is present every day for 7 days, refer for assessment.

### 12. MEASLES

- If the child has any general danger sign, severe pneumonia, severe malnutrition, clouding of the cornea, or deep or extensive mouth ulcers refer the child to the hospital. First, treat the child with vitamin A. Also give the first dose of an appropriate antibiotic (cotrim or IM chloramphenicol).
- If referral is not necessary, teach the mother to treat any eye infection or mouth ulcers at home. **Treat the child with vitamin A.**

### 13. ACUTE EAR INFECTION

- Give cotrimoxazole or amoxicillin for 5 days
- Give paracetamol for pain
- Dry the ear by wicking
- Follow-up in 5 days

### 14. CHRONIC EAR INFECTION

- Dry the ear by wicking (antibiotics will not help)
- Follow-up in 5 days

### 15. SEVERE MALNUTRITION OR SEVERE ANAEMIA

- Give a dose of vitamin A
- Refer urgently to the hospital

### 16. ANAEMIA

- Treat with iron
- Treat with an antimalarial
- Give mebendazole if the child has not had any in the last 6 months.
- Assess the child's feeding and counsel the mother about feeding her child
- Advise the mother to return in 14 days

### 15. NO SEVERE MALNUTRITION AND NO ANAEMIA

- Assess the child's feeding and counsel the mother about feeding her child
- If feeding problems, return in 5 days

# ASSESS AND CLASSIFY THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS

## Brief Explanation of Each of the Steps Involved

### 1. START BY GREETING THE CARETAKER AND ASKING WHAT THE CHILD'S PROBLEMS ARE

As noted previous, good communication with the caretaker is essential.

### 2. CHECK FOR GENERAL DANGER SIGNS

Check ALL sick children for general danger signs. A child with a general danger sign has a serious problem. Most children with a general danger sign need URGENT referral to hospital.

**ASK: Is the child able to drink or breastfeed?** A child has the sign "not able to drink or breastfeed" if the child is too weak to drink and is not able to suck or swallow when offered a drink or breastmilk. If you are not sure about the mother's answer, ask her to offer the child a drink of clean water or breastmilk. Look to see if the child is swallowing the water or breastmilk.

**ASK: Does the child vomit everything?** A child who is not able to hold anything down at all has the sign "vomits everything." What goes down comes back up. A child who vomits everything will not be able to hold down food, fluids or oral drugs. A child who vomits several times but can hold down some fluids does not have this general danger sign.

**ASK: Has the child had convulsions?** Ask about any convulsions *with this illness*.

**LOOK: See if the child is lethargic or unconscious.** A lethargic child is not awake and alert when he should be. Often the lethargic child does not look at his mother or watch your face when you talk. The child may stare blankly and appear not to notice what is going on around him. An unconscious child cannot be wakened. He does not respond when he is touched, shaken or spoken to. Ask the mother if the child seems unusually sleepy or if she cannot wake the child. Look to see if the child awakens when the mother talks or shakes the child or when you clap your hands.

**If the child has a general danger sign, complete the rest of the assessment immediately. This child has a severe problem. There must be no delay in his treatment.**

### 3. ASSESS AND CLASSIFY COUGH OR DIFFICULT BREATHING

A child with cough or difficult breathing may have pneumonia or another severe respiratory infection. On the other hand, there are many children who come to the clinic with less serious respiratory infections. Most children with cough or difficult breathing have only a mild infection. For example, a child who has a cold may cough because nasal discharge drips down the back of the throat. Or, the child may have a viral infection of the bronchi called bronchitis. These children are not seriously ill. They do not need treatment with antibiotics. Their families can treat them at home.

Health workers need to identify the few, very sick children with cough or difficult breathing who need treatment with antibiotics. Fortunately, health workers can identify almost all cases of pneumonia by checking for these two clinical signs: fast breathing and chest indrawing. When children develop pneumonia, their lungs become stiff. One of the body's responses to stiff lungs and hypoxia (too little oxygen) is fast breathing. When the pneumonia becomes more severe, the lungs become even stiffer. Chest indrawing may develop. Chest indrawing is a sign of severe pneumonia.

#### ASSESS COUGH OR DIFFICULTY BREATHING

**ASK: Does the child have cough or difficult breathing?** If the child does not have cough or difficult breathing, ask about the next main symptom, diarrhoea. Do not assess the child further for signs related to cough or difficult breathing. If the mother answers YES, ask the next question.

**ASK: For how long?** A child who has had cough or difficult breathing for more than 3 weeks has a chronic cough. This may be a sign of tuberculosis, asthma, whooping cough or another problem.

**COUNT the breaths in one minute.** The child must be quiet and calm when you look and listen to his breathing. If the child is frightened, crying or angry, you will not be able to obtain an accurate count of the child's breaths. If the child is sleeping, do not wake the child.

As noted on the chart, the cut-off for fast breathing depends on the child's age.

**Note:** The child who is exactly 12 months old has fast breathing if you count 40 breaths per minute or more.

**LOOK for chest indrawing.** If you did not lift the child's shirt when you counted the child's breaths, ask the mother to lift it now. Look for chest indrawing when the child breathes IN. Look at the lower chest wall (lower ribs). The child has chest indrawing if ***the lower chest wall goes IN when the child breathes IN***. In normal breathing, the whole chest wall (upper and lower) and the abdomen move OUT when the child breathes IN. When chest indrawing is present, the lower chest wall goes IN when the child breathes IN. For chest indrawing to be present, it must be clearly visible and present all the time. If you only see chest indrawing when the child is crying or feeding, the child does not have chest indrawing. If only the soft tissue between the ribs goes in when the child breathes in (also called intercostal indrawing or intercostal retractions), the child does not have chest indrawing. In this assessment, chest indrawing is lower chest wall indrawing.

**LOOK and LISTEN for stridor or wheezing.** Stridor is a harsh noise made when the child breathes IN. A child who has stridor when calm has a dangerous condition. To look and listen for stridor, look to see when the child breathes IN. Then listen for stridor. Put your ear near the child's mouth because stridor can be difficult to hear. A child who is not very ill may have stridor only when he is crying or upset. Be sure to look and listen for stridor when the child is calm. Wheezing is a whistling sound made when the child breathes OUT. This is not stridor.

## **CLASSIFY COUGH OR DIFFICULT BREATHING**

After you assess for the main symptom and related signs, classify the child's illness. To classify cough or difficult breathing:

1. Look at the top row. Does the child have a general danger sign? Does the child have chest indrawing or stridor when calm? If the child has a general danger sign or any of the other signs listed in the top row, select the severe classification, SEVERE PNEUMONIA OR VERY SEVERE DISEASE.
2. If the child does not have the severe classification, look at the second row. This child does not have a severe classification. Does the child have fast breathing? If YES, select the classification in the second row, PNEUMONIA
3. If the child does not have the severe classification or the classification in the second row, select the classification in the bottom row, NO PNEUMONIA: COUGH OR COLD.

NOTE: Whenever you use a classification table, start with the top row. In each classification table, a child receives only one classification. If the child has signs from more than one row, always select the more serious classification.

## **4. ASSESS AND CLASSIFY DIARRHOEA**

Diarrhoea is defined as three or more loose or watery stools in a 24-hour period. Mothers usually know when their children have diarrhoea. They may say that the child's stools are loose or watery.

**ASSESS DIARRHOEA** Ask about diarrhoea in ALL children:

**ASK: Does the child have diarrhoea?** If the mother answers NO, ask about the next main symptom, fever. You do not need to assess the child further for signs related to diarrhoea. If the mother answers YES, then assess the child for signs of dehydration, persistent diarrhoea and dysentery.

**ASK: For how long?** Diarrhoea which lasts *14 days or more* is persistent diarrhoea.

**ASK: Is there blood in the stool?** Ask the mother if she has seen blood in the stools at any time during this episode of diarrhoea.

Next, check for signs of *dehydration*. LOOK and FEEL for the following signs:

**LOOK at the child's general condition. Is the child lethargic or unconscious? restless and irritable?** A child has the sign *restless and irritable* if the child is restless and irritable all the time or every time he is touched and handled. If an infant or child is calm when breast-feeding but again restless and irritable when he stops breast-feeding, he has the sign "restless and irritable". Many children are upset just because they are in the clinic. Usually these children can be consoled and calmed. They do not have the sign "restless and irritable".

**LOOK for sunken eyes.** Decide if you think the eyes are sunken. Then ask the mother if she thinks her child's eyes look unusual. Her opinion helps you confirm that the child's eyes are sunken.

**OFFER the child fluid. Is the child not able to drink or drinking poorly? drinking eagerly, thirsty?** Ask the mother to offer the child some water in a cup or spoon. Watch the child drink. A child is *not able to drink* if he is not able to take fluid in his mouth and swallow it. For example, a child may not be able to drink because he is lethargic or unconscious. Or the child may not be able to suck or swallow. A child is *drinking poorly* if the child is weak and cannot drink without help. He may be able to swallow only if fluid is put in his mouth. A child has the sign *drinking eagerly, thirsty* if it is clear that the child wants to drink. Look to see if the child reaches out for the cup or spoon when you offer him water. When the water is taken away, see if the child is unhappy because he wants to drink more. If the child takes a drink only with encouragement and does not want to drink more, he does not have the sign "drinking eagerly, thirsty."

**PINCH the skin of the abdomen. Does it go back: Very slowly (longer than 2 seconds)? Slowly?** Locate the area on the child's abdomen halfway between the umbilicus and the side of the abdomen. To do the skin pinch, use your thumb and first finger. Do not use your fingertips because this will cause pain. Place your hand so that when you pinch the skin, the fold of skin will be in a line up and down the child's body and not across the child's body. Firmly pick up all of the layers of skin and the tissue under them. Pinch the skin for one second and then release it. When you release the skin, look to see if the skin pinch goes back:

- very slowly (longer than 2 seconds)
- slowly
- immediately

If the skin stays up for even a brief time after you release it, decide that the skin pinch goes back slowly.

### **Classify Dehydration**

To classify the child's dehydration, begin with the top row.

- If **two** or more of the signs in the top row are present, classify the child as having SEVERE DEHYDRATION.
- If fewer than **two** of the signs in the top row are present, look at the middle row. If two or more of the signs in this middle row are present, classify the child as having SOME DEHYDRATION.
- If fewer than two of the signs from the middle row are present, classify the child as having NO DEHYDRATION.

### **Classify Persistent Diarrhoea**

If the child has had diarrhoea for 14 days or more, classify the child as having PERSISTENT DIARRHOEA or (if the child also has dehydration) SEVERE PERSISTENT DIARRHOEA

### **Classify Dysentery**

If the mother reports that there is blood in the stool classify the child as having DYSENTERY.

*Note:* A child with diarrhoea may have one or more classifications for diarrhoea. For example, a child might be classified as having NO DEHYDRATION and DYSENTERY.

## **5. ASSESS AND CLASSIFY FEVER**

A child with fever may have malaria, measles or another severe disease.

### **ASSESS FEVER**

Ask about (or measure) fever in ALL sick children.

**ASK: Does the child have fever?** Check to see if the child has a history of fever, feels hot or has a temperature of 37.5°C or above. The child has a history of fever if the child has had any fever with this illness. Feel the child's stomach or underarm and determine if the child feels hot. If the child does not have fever (by history, feels hot or temperature 37.5°C or above), do not assess the child for signs related to fever. If the caretaker reports that the child has had fever with this illness then assess the child's fever even if the child does not have a temperature of 37.5°C or above or does not feel hot now.

**ASK: For how long? If more than 7 days, has fever been present every day?** Most fevers due to viral illnesses go away within a few days. A fever which has been present every day for more than 7 days can mean that the child has a more severe disease such as typhoid fever. Refer this child for further assessment.

**LOOK or FEEL for stiff neck.** A child with fever and stiff neck may have meningitis. A child with meningitis needs urgent treatment with injectable antibiotics and referral to a hospital. While you talk with the mother during the assessment, look to see if the child moves and bends his neck easily as he looks around. If the child is moving and bending his neck, he does not have a stiff neck. If you did not see any movement, or if you are not sure, draw the child's attention to his umbilicus or toes. For example, you can tickle his toes to encourage the child to look down. Look to see if the child can bend his neck when he looks down at his umbilicus or toes. If you still have not seen the child bend his neck himself, ask the mother to help you lie the child on his back. Lean over the child, gently support his back and shoulders with one hand. With the other hand, hold his head. Then carefully bend the head forward toward his chest. If the neck bends easily, the child does not have stiff neck. If the neck feels stiff and there is resistance to bending, the child has a stiff neck.

**LOOK for signs suggesting MEASLES.** Look for a generalized rash and for one of the following signs: cough, runny nose, or red eyes.

**Generalized rash** In measles, a red rash begins behind the ears and on the neck and spreads to the

rest of the body, arms and legs. After 4 to 5 days, the rash starts to fade and the skin may peel. A measles rash does not have vesicles (blisters) or pustules. The rash does not itch. Do not confuse measles with other common childhood rashes such as chicken pox, scabies or heat rash. (The chicken pox rash is a generalized rash with vesicles. Scabies occurs on the hands, feet, ankles, elbows, buttocks and axilla. It also itches. Heat rash can be a generalized rash with small bumps and vesicles which itch. A child with heat rash is not sick.)

**Cough, Runny Nose, or Red Eyes** To classify a child as having measles, the child with fever must have a generalized rash AND one of the following signs: cough, runny nose, or red eyes. The child has "red eyes" if there is redness in the white part of the eye.

## CLASSIFY FEVER

There are two possible classifications of fever

- ▶ VERY SEVERE FEBRILE DISEASE
- ▶ MALARIA

## CLASSIFY MEASLES

A child who has the main symptom "fever" and measles is classified both for fever and for measles.

## 6. ASSESS AND CLASSIFY EAR PROBLEM

When a child has an ear infection, pus collects behind the ear drum and causes pain and often fever. If the infection is not treated, the ear drum may burst. The pus discharges, and the child feels less pain. The fever and other symptoms may stop, but the child suffers from poor hearing because the ear drum has a hole in it. Usually the ear drum heals by itself. At other times the discharge continues, the ear drum does not heal, and the child becomes deaf in that ear.

Ear infections rarely cause death. However, they cause many days of illness in children. Ear infections are the main cause of deafness in developing countries, and deafness causes learning problems in school.

**ASSESS EAR PROBLEM** Ask about ear problem in ALL sick children.

**ASK: Does the child have an ear problem?** If the mother answers NO, do not assess the child for ear problem. If the mother answers YES, ask the next question:

**ASK: Does the child have ear pain?** Ear pain can mean that the child has an ear infection. If the mother is not sure that the child has ear pain, ask if the child has been irritable and rubbing his ear.

**ASK: Is there ear discharge? If yes, for how long?** An ear discharge that has been present for 2 weeks or more is treated as a chronic ear infection. An ear discharge that has been present for less than 2 weeks is treated as an acute ear infection.

**LOOK for pus draining from the ear.**

Pus draining from the ear is a sign of infection, even if the child no longer has any pain. Look inside the child's ear to see if pus is draining from the ear.

**CLASSIFY EAR PROBLEM**

There are three classifications for ear problem:

- ▶ ACUTE EAR INFECTION
- ▶ CHRONIC EAR INFECTION
- ▶ NO EAR INFECTION

**7. CHECK FOR MALNUTRITION AND ANAEMIA**

Check all sick children for signs suggesting malnutrition and anaemia. A mother may bring her child to clinic because the child has an acute illness. The child may not have specific complaints that point to malnutrition or anaemia. A sick child can be malnourished, but the health worker or the child's family may not notice the problem. Identifying children with malnutrition and treating them can help prevent many severe diseases and death. Some malnutrition cases can be treated at home. Severe cases need referral to hospital for special feeding, blood transfusion, or specific treatment of a disease contributing to malnutrition (such as tuberculosis).

**ASSESS FOR MALNUTRITION AND ANAEMIA** Assess ALL sick children for malnutrition and anaemia:

**LOOK for visible severe wasting.** A child with visible severe wasting has marasmus, a form of severe malnutrition. A child has this sign if he is very thin, has no fat, and looks like skin and bones. Some children are thin but do not have visible severe wasting. This assessment step helps you identify children with visible severe wasting who need urgent treatment and referral to a hospital. To look for visible severe wasting, remove the child's clothes. Look for severe wasting of the muscles of the shoulders, arms, buttocks and legs. Look to see if the outline of the child's ribs is easily seen. Look at the child's hips. They may look small when you compare them with the chest and abdomen. Look at the child from the side to see if the fat of the buttocks is missing. When wasting is extreme, there are many folds of skins on the buttocks and thigh. It looks as if the child is wearing baggy pants. The face of a child with visible severe wasting may still look normal. The child's abdomen may be large or distended.

**LOOK for palmar pallor.** Pallor is unusual paleness of the skin. It is a sign of anaemia. To see if the child has palmar pallor, look at the skin of the child's palm. Hold the child's palm open by grasping it gently from the side. Do not stretch the fingers backwards. This may cause pallor by blocking the blood supply. Compare the colour of the child's palm with your own palm and with the palms of other children. If the skin of the child's palm is pale, the child has some palmar pallor. If the skin of the palm is very pale or so pale that it looks white, the child has severe palmar pallor.

**LOOK and FEEL for oedema of both feet** A child with oedema of both feet may have kwashiorkor, another form of severe malnutrition. Oedema is when an unusually large amount of fluid gathers in the child's tissues. The tissues become filled with the fluid and look swollen or puffed up. Look and feel to determine if the child has oedema of both feet. Use your thumb to press

gently for a few seconds on the top side of each foot. The child has oedema if a dent remains in the child's foot when you lift your thumb.

### **CLASSIFY NUTRITIONAL STATUS:**

There are three classifications for a child's nutritional status. They are:

- ▶ SEVERE MALNUTRITION OR SEVERE ANAEMIA
- ▶ ANAEMIA
- ▶ NO SEVERE MALNUTRITION AND NO ANAEMIA

## **8. CHECK THE CHILD'S IMMUNIZATION STATUS**

Check the immunization status for ALL sick children.

## **9. CHECK THE CHILD'S VITAMIN A SUPPLEMENTATION STATUS**

When vitamin A supplies are adequate, all children age 6 months up to 6 years should receive vitamin A every 6 months. Visits to clinic for illness are one opportunity to check when the child last received vitamin A. When giving vitamin A as a supplement, you need to be sure it is not given more often than every 6 months. Record the vitamin A dose on the child's immunization and growth card, with the date given. If vitamin A supplies are limited, use what vitamin A you have to treat children with measles and severe malnutrition.

## **10. ASSESS THE CHILD'S OTHER PROBLEMS**

The *ASSESS & CLASSIFY* chart does not address all of a sick child's problems. You should assess other problems the mother told you about. For example, she may have said the child has a skin infection, itching or swollen neck glands. Or you may have observed another problem during the assessment. Identify and treat any other problems according to your training, experience and clinic policy. Refer the child for any other problem you cannot manage in clinic.

## **TREAT THE SICK CHILD AGE 2 MONTHS UP TO 5 YEARS**

**1. SEVERE PNEUMONIA OR VERY SEVERE DISEASE** A child with chest indrawing usually has severe pneumonia. Or the child may have another serious acute lower respiratory infection such as bronchiolitis, pertussis, or a wheezing problem. A child classified as having SEVERE PNEUMONIA OR VERY SEVERE DISEASE is seriously ill. He needs urgent referral to a hospital for treatments such as oxygen, a bronchodilator or injectable antibiotics. Before the child leaves your clinic, give a first dose of an appropriate antibiotic. The antibiotic

helps prevent severe pneumonia from becoming worse. It also helps treat other serious bacterial infections such as sepsis or meningitis. Give cotrim if the child can take medicines by mouth. If the child is not able to take drugs by mouth (for example, the child is unconscious) give a first dose of IM chloramphenicol. The doses for these drugs are given in tables on the following pages.

2. **PNEUMONIA** Treat PNEUMONIA with oral cotrim or amoxicillin. Show the mother how to give the antibiotic. Advise her when to return for follow-up and when to return immediately.
3. **COLD** A child with COLD does not need an antibiotic. The antibiotic will not relieve the child's symptoms. It will not prevent the cold from developing into pneumonia. But the mother brought her child to the clinic because she is concerned about her child's illness. Give the mother advice about good home care. Teach her to soothe the throat and relieve the cough with a safe remedy such as warm tea with sugar. Advise the mother to watch for fast or difficult breathing and to return if either one develops. A child with a cold normally improves in one to two weeks. However, a child who has a chronic cough (a cough lasting more than 3 weeks) may have tuberculosis, asthma, whooping cough or another problem. Refer the child with a chronic cough to hospital for further assessment.
4. **SEVERE DEHYDRATION** Any child with dehydration needs extra fluids. A child classified with SEVERE DEHYDRATION needs fluids quickly. Treat with IV (intravenous) fluids. The box "Plan C: Treat Severe Dehydration Quickly" on the TREAT chart describes how to give fluids to severely dehydrated children.
5. **SOME DEHYDRATION** A child who has SOME DEHYDRATION needs fluid and foods. Treat the child with ORS solution. In addition to fluid, the child with SOME DEHYDRATION needs food. Breastfed children should continue breast-feeding. Other children should receive their usual milk or some nutritious food after 4 hours of treatment with ORS. This treatment is described in the box "Plan B: Treat Some Dehydration With ORS" on the TREAT chart.
6. **NO DEHYDRATION** This child needs extra fluid to prevent dehydration. A child who has NO DEHYDRATION needs home treatment. The box on the TREATMENT charts entitled "Plan A: Treat Diarrhoea At Home" describes what fluids to teach the mother to use and how much she should give. A child with NO DEHYDRATION also needs food, and the mother needs advice about when to return to the clinic.
7. **SEVERE PERSISTENT DIARRHOEA** If a child has had diarrhoea for 14 days or more and also has some or severe dehydration, classify the child's illness as SEVERE PERSISTENT DIARRHOEA. Children with diarrhoea lasting 14 days or more who are also dehydrated need referral to hospital. These children need special attention to help prevent loss of fluid. They may also need a change in diet. They may need laboratory tests of stool samples to identify the cause of the diarrhoea. Treat the child's dehydration before referral unless the child has another severe classification. Treatment of dehydration in children with severe disease can be difficult. These children should have their dehydration be treated in a hospital.

**8. PERSISTENT DIARRHOEA** Special feeding is the most important treatment for persistent diarrhoea. Feeding recommendations for persistent diarrhoea are shown on the feeding chart.

**9. DYSENTERY** Give an antibiotic appropriate for Shigella. Shigella cause nearly all cases of life-threatening dysentery.

**10. VERY SEVERE FEBRILE DISEASE** A child with fever and any general danger sign or stiff neck may have meningitis, severe malaria (including cerebral malaria) or sepsis. It is not possible to distinguish between these severe diseases without laboratory tests. A child classified as having VERY SEVERE FEBRILE DISEASE needs urgent treatment and referral. Before referring urgently, you will give several treatments for the possible severe diseases. Give the child an injection of quinine for malaria. Also give the first dose of an appropriate antibiotic (cotrim if the child can take drugs by mouth or IM chloramphenicol if the child cannot take drugs by mouth) for meningitis or other severe bacterial infection. You should also treat the child to prevent low blood sugar. Also give paracetamol if there is a high fever.

**11. MALARIA** Ask the caretaker whether the child has already been treated with chloroquine during this illness. If yes, ask about the size of dose and number of doses of chloroquine given. If the child has not yet received an adequate treatment with chloroquine during this illness, treat the child with a entire course of chloroquine. If after questioning the caretaker it appears that the child has already been adequately treated with chloroquine during this illness, then the child needs to be treated with the second-line anti-malarial sulfa-pyrimethamine (SP). If there is no SP at your health center refer the child to a health facility or store where the drug can be.

Also give paracetamol to a child with high fever (axillary temperature of 38.5°C or above).

Most viral infections last less than a week. A fever that persists every day for more than 7 days may be a sign of typhoid fever or other severe disease. If the child's fever has persisted every day for more than 7 days, refer the child for additional assessment.

**12. MEASLES:** Complications of measles occur in about 30% of all cases. The most important are diarrhoea (including dysentery and persistent diarrhoea), pneumonia, stridor, mouth ulcers, ear infection and severe eye infection (which may lead to corneal ulceration and blindness). Measles contributes to malnutrition because it causes diarrhoea, high fever and mouth ulcers. These problems interfere with feeding. For this reason, it is very important to help the mother to continue to feed her child during measles.

If the child has any general danger sign, clouding of cornea, or deep or extensive mouth ulcers, this child has severe measles and needs urgent referral to hospital. First, treat the child with vitamin A. Also give the first dose of an appropriate antibiotic (cotrim or, if unable to take drugs by mouth, IM chloramphenicol).

If the child does not have a general danger sign, clouding of the cornea or deep or extensive mouth ulcers then referral may not be necessary. Treat any complications of measles such as diarrhoea, mild pneumonia, conjunctivitis or superficial mouth ulcers. Teach the mother to treat the child's

eye infection or mouth ulcers at home. Treating mouth ulcers helps the child to more quickly resume normal feeding. Treat the child with vitamin A. It will help correct any vitamin A deficiency and decrease the severity of the complications.

**13. ACUTE EAR INFECTION** Antibiotics for treating pneumonia are effective against the bacteria that cause most ear infections. Give paracetamol to relieve the ear pain (or high fever). If pus is draining from the ear, dry the ear by wicking.

**14. CHRONIC EAR INFECTION** Most bacteria that cause CHRONIC EAR INFECTION are different from those which cause acute ear infections. For this reason, oral antibiotics are not usually effective against chronic infections. Do not give repeated courses of antibiotics for a draining ear. The most important and effective treatment for CHRONIC EAR INFECTION is to keep the ear dry by wicking. Teach the mother how to dry the ear by wicking.

If there is no ear pain and no pus is seen draining from the ear, the child's illness is classified as NO EAR INFECTION. The child needs no additional treatment.

**15. SEVERE MALNUTRITION OR SEVERE ANAEMIA** Children classified as having SEVERE MALNUTRITION OR SEVERE ANAEMIA are at risk of death from pneumonia, diarrhoea, measles, and other severe diseases. These children need urgent referral to hospital where their treatment can be carefully monitored. They may need special feeding, antibiotics or blood transfusions. Before the child leaves for hospital, give the child a dose of vitamin A.

**16. ANAEMIA** A child with some palmar pallor may have anaemia. Treat the child with iron unless the child also has a severe classification or is known to have sickle cell anemia. Also give an antimalarial to a child with signs of anaemia. Hookworm and whipworm infections contribute to anaemia so also give the child mebendazole if he has not had a dose of the drug in the last 6 months. Advise the mother of a child with some palmar pallor to return for follow-up in 14 days.

Assess the child's feeding and counsel the mother about feeding her child according to the recommendations in the FOOD chart (see nutrition guidelines).

**17. NO SEVERE MALNUTRITION AND NO ANAEMIA** Even if the child does not have severe malnutrition or anaemia, the child may still have a less severe form of malnutrition. Even less severe malnutrition contributes significantly to a child's risk of dying. Assess the child's feeding. Counsel the mother about feeding her child according to the recommendations in the FOOD chart (see nutrition guidelines). Children less than 2 years of age have a higher risk of feeding problems and malnutrition than older children.

# **ASSESS AND CLASSIFY THE SICK YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS**

## **INTRODUCTION**

Young infants have special characteristics that must be considered when classifying their illness. They can become sick and die very quickly from serious bacterial infections. They frequently have only general signs such as few movements, fever, or low body temperature. Mild chest indrawing is normal in young infants because their chest wall is soft. For these reasons, you should assess, classify and treat the young infant somewhat differently than an older infant or young child. The steps to follow are given in the chart entitled **ASSESS AND CLASSIFY THE SICK YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS**.

This chart is not used for a sick newborn, that is a young infant who is less than 1 week of age. In the first week of life, newborn infants are often sick from conditions related to labour and delivery or have conditions which require special management. Health workers who care for sick newborns must be familiar with labour and delivery and their complications. Therefore, training in management of sick newborns will be combined with training in labour and delivery in another course.

Some of the guidelines for management of sick children age 2 months up to 5 years are also useful for management of young infants. Also refer to the section on child nutrition for guidelines on assessing breastfeeding and on how to counsel on breastfeeding. This section focuses on additional guidelines for the young infant.

## **BEGIN BY ASKING THE MOTHER WHAT THE YOUNG INFANT'S PROBLEMS ARE**

*On the next 2 pages is the chart for management of the sick young infant age 1 week up to 2 months. Following the chart is an explanation of each of the steps summarized in the chart.*

38

## ASSESS & CLASSIFY THE SICK YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS

### CHECK FOR POSSIBLE BACTERIAL INFECTION

**ASK:**

- Has the infant had convulsions?
- Is the infant able to feed?

**LOOK, LISTEN, FEEL:**

- Count the breaths in one minute  
Repeat the count if elevated.
- Look for severe chest indrawing
- Look for nasal flaring
- Look and listen for grunting
- Look and feel for bulging fontanelle
- Look for pus draining from the ear
- Look at the umbilicus.  
Is it red or draining pus?  
Does the redness extend to the skin?
- Measure temperature (or feel for fever or low body temperature)
- Look for skin pustules.  
Are there many or severe pustules?
- See if the young infant is lethargic or unconscious
- Look at the young infants movements.  
Are they less than normal?

**Classify  
ALL  
YOUNG  
INFANTS**



<ul style="list-style-type: none"> <li>• Convulsions; OR</li> <li>• Not able to feed; OR</li> <li>• Fast breathing; OR (60 breaths per minute or more)</li> <li>• Severe chest indrawing; OR</li> <li>• Nasal flaring; OR</li> <li>• Grunting; OR</li> <li>• Bulging fontanelle; OR</li> <li>• Pus draining from ear; OR</li> <li>• Umbilical redness extending to the skin; OR</li> <li>• Fever (37.5 °C or above or feels hot); OR</li> <li>• Low body temperature (less than 35.5°C or feels cold); OR</li> <li>• Many or severe skin pustules; OR</li> </ul>	<p><b>POSSIBLE SERIOUS BACTERIAL INFECTION</b></p>
<ul style="list-style-type: none"> <li>• Red umbilicus or draining pus; OR</li> <li>• Skin pustules</li> </ul>	<p><b>LOCAL BACTERIAL INFECTION</b></p>

**THEN ASK, "Does the child have diarrhoea?"**

**IF YES, ASK:**

- "For how long?"
- "Is there blood in the stool?"

**LOOK AND FEEL:**

- Look at the child's general condition: Is the child:
  - Lethargic or unconscious?
  - Restless and irritable?
- Look for sunken eyes.
- Pinch the skin of the abdomen. Does it go back:
  - Very slowly (longer than 2 seconds)?
  - Slowly?

**CLASSIFY for DEHYDRATION**



Two of the following signs: ● Lethargic or unconscious ● Sunken eyes ● Skin pinch goes back very slowly	<b>SEVERE DEHYDRATION</b>
Two of the following signs: ● Restless and irritable ● Sunken eyes ● Skin pinch goes back slowly	<b>SOME DEHYDRATION</b>
Not enough signs to classify as dehydration	<b>NO DEHYDRATION</b>
● Diarrhoea lasting 14 days or more	<b>SEVERE PERSISTENT DIARRHOEA</b>
● Blood in the stool	<b>DYSENTERY</b>

if diarrhoea 14 days or more



if blood in stool



**THEN ASSESS BREASTFEEDING**

**THEN ASSESS IMMUNIZATION STATUS and ASSESS OTHER PROBLEMS**

59

## **TREAT THE SICK YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS**

### **1. POSSIBLE SERIOUS BACTERIAL INFECTION**

- ▶ Give first dose of both benzylpenicillin IM and gentamycin IM
- ▶ Treat to prevent low blood sugar
- ▶ Advise the caretaker how to keep the infant warm on the way to the hospital
- ▶ Refer URGENTLY to hospital

### **2. LOCAL BACTERIAL INFECTION**

- ▶ Give cotrim or amoxycillin by mouth for 5 days
- ▶ Teach mother how to treat the local infections at home
- ▶ Advise mother to give home care for the young infant
- ▶ Follow-up in 2 days

### **3. SEVERE DEHYDRATION**

- If child has no other severe classification, give fluids for severe dehydration (Plan C)
- If child has another severe classification, refer urgently to the hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breast-feeding.

### **4. SOME DEHYDRATION**

- If child has no severe classification, give fluid and food for some dehydration (Plan B)
- If child has a severe classification, refer urgently to the hospital with mother giving frequent sips of ORS on the way. Advise the mother to continue breast-feeding.

### **5. NO DEHYDRATION**

- Give fluid and food to treat diarrhoea at home (Plan A).

### **7. SEVERE PERSISTENT DIARRHOEA**

- If child has no other severe classification, treat the dehydration before referral.
- Refer to hospital

### **8. DYSENTERY**

- Give a first dose of an antibiotic for dysentery
- Refer to hospital

## ASSESS AND CLASSIFY THE SICK YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS (continued)

### 1. CHECK THE YOUNG INFANT FOR POSSIBLE BACTERIAL INFECTION

This assessment step is done for *every* sick young infant. In this step you are looking for signs of bacterial infection, especially a serious infection. A young infant can become sick and die *very quickly* from serious bacterial infections such as pneumonia, sepsis and meningitis.

It is important to assess the signs in the order on the chart, and to keep the young infant calm. The young infant *must be calm* and may be asleep while you assess the first four signs, that is, count breathing and look for chest indrawing, nasal flaring and grunting.

To assess the next few signs, you will pick up the infant and then undress him, look at the skin all over his body and measure his temperature. By this time he will probably be awake. Then you can see whether he is lethargic or unconscious and observe his movements.

How to assess each sign is described below.

**ASK: Has the infant had convulsions?**

**ASK: Is the infant able to feed?** If a mother says that the infant is **not able to feed**, assess breastfeeding or watch her try to feed the infant with a cup to see what she means by this. An infant who is **not able to feed** may have a serious infection or other life-threatening problem and should be referred urgently to hospital.

**LOOK: Count the breaths in one minute. Repeat the count if elevated.** 60 breaths per minute or more is the cutoff used to identify fast breathing in a young infant. If the first count is 60 breaths or more, repeat the count. This is important because the breathing rate of a young infant is often irregular. The young infant will occasionally stop breathing for a few seconds, followed by a period of faster breathing. If the second count is also 60 breaths or more, the young infant has fast breathing.

**LOOK for severe chest indrawing.**

Look for chest indrawing as you would look for chest indrawing in an older infant or young child. However, mild chest indrawing is normal in a young infant

because the chest wall is soft. Severe chest indrawing is very deep and easy to see. Severe chest indrawing is a sign of pneumonia and is serious in a young infant.

**LOOK for nasal flaring.**

Nasal flaring is widening of the nostrils when the young infant breathes in.

**LOOK and LISTEN for grunting.**

Grunting is the soft, short sounds a young infant makes when breathing out. Grunting occurs when an infant is having trouble breathing.

**LOOK and FEEL for bulging fontanelle.**

The fontanelle is the soft spot on the top of the young infant's head, where the bones of the head have not formed completely. Hold the young infant in an upright position. The infant must not be crying. Then look at and feel the fontanelle. If the fontanelle is bulging rather than flat, this may mean the young infant has meningitis.

**LOOK for pus draining from the ear.**

**LOOK at the umbilicus - is it red or draining pus? Does the redness extend to the skin?** There may be some redness of the end of the umbilicus or the umbilicus may be draining pus. (The cord usually drops from the umbilicus by one week of age.) How far down the umbilicus the redness extends determines the severity of the infection. If the redness extends to the skin of the abdominal wall (as shown in this drawing), it is a serious infection.

**FEEL: Measure temperature (or feel for fever or low body temperature).**

Fever (axillary temperature more than  $37.5^{\circ}\text{C}$  or rectal temperature more than  $38^{\circ}\text{C}$ ) is uncommon in the first two months of life. If a young infant has fever, this may mean the infant has a serious bacterial infection. In addition, fever may be the *only* sign of a serious bacterial infection. Young infants can also respond to infection by dropping their body temperature to below  $35.5^{\circ}\text{C}$  ( $36^{\circ}\text{C}$  rectal temperature). Low body temperature is called hypothermia. If you do not have a thermometer, feel the infant's stomach or axilla (underarm) and determine if it feels hot or unusually cool.

**LOOK for skin pustules. Are there many or severe pustules?**

Examine the skin on the entire body. Skin pustules are red spots or blisters which contain pus. If you see pustules, is it just a few pustules or are there many? A severe pustule is large or has redness extending beyond the pustule. Many or severe pustules indicate a serious infection.

**LOOK: See if the young infant is lethargic or unconscious.**

Young infants often sleep most of the time, and this is not a sign of illness. Even when awake, a healthy young infant will usually not watch his mother and a health worker while they talk, as an older infant or young child would. A lethargic young infant is not awake and alert when he should be. He may be drowsy and may not stay awake after a disturbance. If a young infant does not wake up during the assessment, ask the mother to wake him. Look to see if the child awakens when the mother talks or gently shakes the child or when you clap your hands. See if he stays awake.

An unconscious young infant cannot be wakened at all. He does not respond when he is touched or spoken to.

**LOOK** at the young infant's movements. Are they less than normal? An awake young infant will normally move his arms or legs or turn his head several times in a minute if you watch him closely. Observe the infant's movements while you do the assessment.

### **CLASSIFY ALL SICK YOUNG INFANTS FOR BACTERIAL INFECTION**

Compare the infant's signs to signs listed and choose the appropriate classification. If the infant has any sign in the top row, select **POSSIBLE SERIOUS BACTERIAL INFECTION**. An infant who has none of the signs gets no classification of bacterial infection.

## **2. THEN ASSESS DIARRHOEA**

If the mother says that the young infant has diarrhoea, assess and classify for diarrhoea. The normally frequent or loose stools of a breastfed baby are not diarrhoea. The mother of a breastfed baby can recognize diarrhoea because the consistency or frequency of the stools is different than normal. The assessment is similar to the assessment of diarrhoea for an older infant or young child, but fewer signs are checked. Thirst is not assessed. This is because it is not possible to distinguish thirst from hunger in a young infant.

### **CLASSIFY DIARRHOEA**

Dehydration in a young infant is classified in the same way as in an older infant or young child. Note that there is only one possible classification for persistent diarrhoea in a young infant. This is because any young infant who has persistent diarrhoea has suffered with diarrhoea a large part of his life and should be referred. Similarly, all young infants with bloody diarrhoea should be referred. Dysentery is rare in young infants and bloody diarrhoea may be a sign of a serious problem.

*BEST AVAILABLE COPY*

**3. THEN ASSESS BREAST FEEDING** Assess breastfeeding according to the guidelines provided in the section on child nutrition.

**4. THEN CHECK IMMUNIZATION STATUS** Check immunization status just as you would for an older infant or young child.

**5. THEN ASSESS OTHER PROBLEMS**

### **TREAT THE SICK YOUNG INFANT AGE 1 WEEK UP TO 2 MONTHS**

**1. POSSIBLE SERIOUS BACTERIAL INFECTION** A young infant with signs in this classification may have a serious disease and be at high risk of dying. The infant may have pneumonia, sepsis or meningitis. It is difficult to distinguish between these infections in a young infant. Fortunately, it is not necessary to make this distinction. A young infant with any sign of **POSSIBLE SERIOUS BACTERIAL INFECTION** needs urgent referral to hospital. Before referral, give a first dose of intramuscular antibiotics. Young infants with **POSSIBLE SERIOUS BACTERIAL INFECTION** are often infected with a broader range of bacteria than older infants. The combination of gentamicin and penicillin is effective against this broader range of bacteria. Also treat to prevent low blood sugar. This treatment is described in a box on the *TREAT* chart. Advising the mother to keep her sick young infant warm is very important. Young infants have difficulty maintaining their body temperature. Low temperature alone can kill young infants. If the mother is familiar with wrapping her infant next to her body, this is a good way to keep him warm on the way to the hospital.

**2. LOCAL BACTERIAL INFECTION** Young infants with this classification have an infected umbilicus or a skin infection. Treatment includes giving an appropriate oral antibiotic at home for 5 days. The mother will also treat the local infection at home and give home care. Twice each day for 5 days the mother cleans the infected area and then applies gentian violet. She should return for follow-up in 2 days to be sure the infection is improving. Bacterial infections can progress rapidly in young infants.

**3. SEVERE DEHYDRATION** Treat the same way as with the older child..

**4. SOME DEHYDRATION** Treat the same way as with the older child.

**5. NO DEHYDRATION** Treat the same way as with the older child.

6. **SEVERE PERSISTENT DIARRHOEA** Note that there is only one possible classification for persistent diarrhoea in a young infant. This is because any young infant who has persistent diarrhoea has suffered with diarrhoea a large part of his life and should be referred.

7. **DYSENTERY** Refer the young infant to the hospital.

8. **FEEDING PROBLEM** Counsel on breastfeeding as indicated in the section on child nutrition.

## DOSAGE OF DRUGS TO TREAT THE SICK CHILD

[These tables have yet to be designed.

Dosage tables are needed for  
cotrim, amoxicillin, nalidixic acid,  
chloroquine, SP, paracetamol,  
mebendazole, vitamin A, iron,  
IM chloramphenicol and IM quinine.

In addition, boxes are needed to illustrate  
Plans A, B and C for treatment of dehydration.

This will likely require about 7 pages.]

# SEXUALLY TRANSMITTED DISEASES

## INTRODUCTION

Sexually transmitted diseases (STDs) are infections contracted through sexual intimacy. Gonorrhoea, syphilis and chancroid, apart from AIDS are the most common STDs seen. Patients usually have one of four syndromes (sets of signs and symptoms):

- genital ulcers;
- genital discharge (urethral or vaginal); or
- pain in the lower abdomen or scrotum, or
- AIDS.

## Size of the problem

These diseases are especially prevalent among young adults and adolescents in all social and economic strata. About 10% of adult outpatient visits in Zambia are STD-related. The full extent of the problem is hidden, however, because many people seek treatment from informal health care providers such as traditional healers or drug vendors.

Surveys in antenatal clinics in Zambia have shown that 10% - 15% of expectant mothers have syphilis antibodies while 25% or more in urban areas and 10% or more in rural areas are infected with the HIV virus.

## The impact of STDs

The impact of AIDS in Zambia is enormous. But apart from this newest of STDs, the conventional STDs produce great hardship through complications such as **pelvic inflammatory disease** with its risk of **ectopic pregnancy** and **infertility**, spontaneous **abortion**, **cervical cancer**, and painful and disfiguring **genital wounds**.

## STDs can also be transmitted from mother to baby and via blood

To make matters worse, STDs can be transmitted from an infected pregnant mother to her baby causing complications such as **congenital syphilis** and **ophthalmia neonatorum** in addition to **paediatric AIDS**.

Syphilis and HIV can also be transmitted through transfusion with infected blood and HIV can be transmitted through needles, syringes and surgical instruments contaminated with infected blood.

## Conventional STDs increase transmission of HIV

A person with a conventional STD such as syphilis or chancroid is more susceptible to infection with HIV. Research has demonstrated that prevention and control of STDs helps in prevention and control of HIV.

## Antibiotic resistance is growing

More than half of gonorrhoea strains are now resistant to penicillin. This means that penicillin, which is cheap, should no longer be used to treat this disease. A smaller

percentage (1% - 5%) of gonorrhoea strains are also resistant to some other potent drugs. Chancroid is also becoming resistant to most antibiotics including cotrimoxazole which used to be the drug of first choice. The problem of drug resistance is made worse by the use of antibiotics in sub-standard doses bought from drug vendors without proper prescription.

## **PREVENTIVE AND PROMOTIVE INTERVENTIONS**

For proper control of STDs, persons with symptoms must be correctly diagnosed, appropriately treated and given advice on protection against further transmission and future acquisition of additional STDs and their sexual partners should also be screened for infection and appropriately treated and counseled.

Health workers should speak with community groups, at schools and at health facilities to more fully inform people in sexually active age groups. Key objectives include:

- To promote and reinforce safer sexual practices;
- To correct any misconceptions and provide factual information about STDs;
- To discourage use of antibiotics without proper diagnosis and prescription.

### **The five C's for communication about STDs**

**Counseling** on the dangers of STDs, the importance of having only one sexual partner and the process of STD care

**Confidentiality** -- Privacy is essential for effective counseling. Organise your consulting area to permit confidential discussions. Information regarding the patient should not be communicated to other persons without consent of the patient.

**Compliance with treatment** -- Emphasize the dangers of defaulting while on treatment.

**Contacts** -- Treatment of sexual contacts is crucial. Patients should be encouraged to bring all of their sexual contacts for the same treatment whether or not the contacts have symptoms.

**Condoms** -- for those who choose not to abstain. Even persons who are limiting their sexual partners will benefit from condoms--one partner might have an infection and not know it.

**Note:** People who come to the clinic suspecting they have an STD are often anxious. Many times patients will complain of symptoms other than the real ones out of embarrassment. Be sensitive to this and direct your questions and advice in a polite manner.

## SYNDROMIC APPROACH TO MANAGEMENT OF STDs

Identification of individual STDs (for example, syphilis vs. chancroid vs. LGV) on purely clinical grounds has been shown to be unreliable and does not therefore provide a good basis for making a decision on management of STDs. The main constraint has been limited laboratory support. In order to permit effective treatment of STDs even in the absence of laboratory facilities an approach has been developed to classify any STD into one of several syndromes. Each syndrome is managed with an algorithm (an approach to selecting the best treatment) which effectively treats the great majority of patients with that syndrome. Before applying the algorithm, take a history, examine the genitals including the glands in the groin and inspect the skin and mouth. **Remember that the patient may have multiple infections and more than one syndrome.**

## GENITAL ULCER SYNDROME

Syphilis, chancroid, lymphogranuloma venereum (LGV), granuloma inguinale and herpes all present with genital ulcers.

### What does Genital Ulcer Syndrome look like?

- In males, ulcers are commonly found on the penis, though they may appear anywhere on the external genitalia.
- In females, ulcers can develop on the external genitalia, at the vaginal opening, inside the vagina or on the cervix.
- These ulcers may appear with or without swelling and drainage from bubos (infected glands in the groin).
- Small blisters on the genitals are caused by herpes
- Warts on the genitals are caused by a disease called condylomata acuminata

### How is Genital Ulcer Syndrome treated?

- Unless there are small blisters suggesting herpes, assume that all ulcers are double infections of both Chancroid and Syphilis (*frequently even an ulcer that looks like Chancroid will contain Syphilis*) and
  - treat with a single dose of Benzathine Penicillin 2.4 mega units stat IM PLUS Erythromycin 500 mg three or four times a day for 7 days; OR
  - if Erythromycin is not available and the ulcer is painless and does not easily bleed when pressed, then treat with Benzathine Penicillin alone. Otherwise, REFER.
- If there are small blisters and small ulcers from herpes, treat the ulcers with 1% GV paint applied topically twice a day for a week to prevent secondary bacterial infection. The patient should be told that it is possible that the blisters will return periodically and to avoid intercourse while the ulcers are present. If the patient is not also treated for syphilis (with Benzathine Penicillin) then s/he should return in 1 week for an RPR test.
- For pain, use paracetamol.
- Do not incise a bubo. Instead, aspirate it with a large bore needle attached to a large

syringe. When a bubo is ready for aspiration, the overlying skin is shiny and the area underneath is soft. Before aspirating, clean the skin over the bubo with methylated spirit on a cotton wool swab. Pierce the skin only 2 mm and aspirate as much pus as possible. Re-aspirate in 2 days if necessary.

- If there are warts on the genitals, treat with podophyllin 20% solution. This is applied to the warts, left on for 4 hours and then washed off. Electrocautery is an alternative treatment. Repeat treatment weekly.
- Counsel the patient (see **The five C's for communication about STDs**)
- Refer the patient if the ulcers do not improve and gradually heal with this treatment.

#### **Different STDs cause somewhat different types of genital ulcers**

- Syphilis often causes ulcers which are painless, clean, single and do not bleed easily when pressed. Without treatment these ulcers may heal in 4-8 week, but the deadly disease remains.
- Chancroid often causes ulcers which are painful, dirty, multiple and bleed easily when pressed. Patients often develop enlarged lymph nodes in the groin called bubos which may become tender and soft and drain pus.
- Lymphogranuloma venereum (LGV) also often causes small sores, draining bubos and sometimes swelling of the genitals.
- Granuloma inguinale often causes lumps under the skin in the genital region. The lumps break down to become "beefy", red, painless ulcers without lymph node enlargement.
- Herpes causes itchiness, then small blisters which turn into small, shallow, painful ulcers on the genitals. Ulcers heal on their own in 2-3 weeks and in 50% of persons the ulcers return periodically even without further sexual exposure.
- Condylomata acuminata causes cauliflower shaped warts on the genitals. The disease is caused by a virus which also causes cancer of the cervix.

*It is quite difficult to reliably distinguish between the ulcers caused by syphilis, chancroid, LGV and granuloma inguinale on clinical examination alone, without laboratory investigations. For this reason, it is preferable to use syndromic management as described above.*

#### **The RPR test -- Diagnosing later stages of syphilis**

Syphilis is the most serious of the curable STDs. The disease can affect all organs of the body and can cause death, premature delivery, low birth weight or very serious deformities in babies of pregnant women who are infected.

As noted above, surveys have shown that as many as 15% of woman attending antenatal clinics in Zambia have been infected with syphilis. Yet most of these woman do not have genital ulcers to alert health workers to their infection. This is why **it is important that pregnant women be tested for syphilis when they attend antenatal clinics**. If possible, test initially in the first or second trimester then repeat the test in the last trimester. The laboratory test for syphilis that is most commonly available is the RPR (Rapid Plasma Reagin) test. The RPR is easy to perform, requires no sophisticated equipment and can be done by ant health worker after very brief training.

Other patients who should be tested for syphilis include those with signs of secondary syphilis:

- a non-itchy rash all over the body, palms and soles;
- generalised enlargement of lymph nodes;
- Hair loss.

Any patient with a positive RPR test should be treated for syphilis with Benzathine penicillin 2.4 mega units stat IM or Procaine penicillin 600,000 units daily for 10 days unless they have already been treated in the last 6 months and they have not been exposed to reinfection. For persons allergic to penicillin, give tetracycline 500 mg, 4 times a day or doxycycline 100 mg, 2 times a day for 15 days or (for pregnant or breastfeeding mothers) erythromycin 500 mg, 4 times a day for 3 weeks. Their sexual partners should also be treated.

Note that a small percentage (less than 10%) of patients with a positive RPR do not actually have syphilis. Nevertheless any patient with a positive RPR should be treated for syphilis unless a more reliable test is available and the test shows that the patient does not have syphilis.

## **GENITAL DISCHARGE SYNDROME**

The Genital Discharge Syndrome can be caused by either gonorrhoea or chlamydia

### **What does Genital Discharge Syndrome look like?**

- In males, there is pus dripping from the penis and there may be burning pain when passing urine (dysuria). If the genital discharge is not treated the patient develops complications including infection of the testes and epididymis, urethral abscess, urethral stricture and infertility.
- In females, symptoms may be absent during early infection (up to 25% of the time) or there may be purulent vaginal discharge and tenderness of the cervix when it is moved during a vaginal exam. Complications of the infection that develop later include pelvic inflammatory disease (P.I.D.), ectopic pregnancy, infertility, Bartholin's abscess (abscess of a gland in the vulva) and infection of a baby's eyes during birth (ophthalmia neonatorum)
- In females, diagnosis of the syndrome is complicated by the fact that vaginal discharge may also be caused by candidiasis, trichomoniasis or anaerobic vaginosis. Examination with a speculum is thus important:
  - \* When there is infection with gonorrhoea or chlamydia there will usually be pus coming from the opening of the cervix.
  - \* Candidiasis causes an itchy, white discharge that looks like milk curds.
- In males, (particularly those who are immunosuppressed) candida can cause inflammation of the glans of the penis.

### **How to examine a patient with Genital Discharge Syndrome**

- Ask male patients to demonstrate the discharge coming from the penis. If necessary, the patient should "milk" the urethra.

- With a gloved hand, check female patients for tenderness of the pelvis and tenderness of the cervix when it is moved. If at all possible, a speculum should be used to examine the cervix and the vaginal discharge.

### How is Genital Discharge Syndrome treated?

- In males with discharge from the penis, treat for both gonorrhoea and chlamydia. For gonorrhoea the drugs of choice include Ciprofloxacin tablets 500 mg in a single dose or Spectinomycin, 2 g or Kanamycin, 2g or Gentamycin, 240 mg in a single IM dose.  
If these drugs are not available give cotrimoxazole, 10 tablets each day for 3 days. For chlamydia, give Tetracycline 500 mg, 4 times a day or Doxycycline 100 mg, 2 times a day or Erythromycin 500 mg, 4 times a day each for 7 days.
- In females with vaginal discharge, if the woman is at risk of an STD and a speculum exam is not possible or if the speculum exam shows discharge coming from the cervix and the discharge is more like pus than milk curds then treat for gonorrhoea and chlamydia as for a male patient. Also treat for trichomoniasis and anaerobic vaginosis with Metronidazole, 2g in a single oral dose.
- If the woman is not at risk of an STD or if the speculum exam shows no pus coming from the cervix treat for candidiasis with topical gentian violet (GV). Use a speculum and a gauze swab to paint the walls of the vagina with GV. Thereafter, once a day for 5 days the patient should insert a swab or tampon soaked in GV. Also treat for trichomoniasis and anaerobic vaginosis with Metronidazole, 2g in a single oral dose
- Counsel the patient (see **The five C's for communication about STDs**)
- Follow up in 7 days. If discharge persists treat further for candidiasis with nystatin vaginal pessaries each night for 7 days or clotrimazole, 200 mg per vagina daily for 3 days.
- Refer the patient if the symptoms do not improve with this treatment.

### Different STDs cause somewhat different types of genital discharge

- Gonorrhoea discharge is often thick and yellow.
- Chlamydia discharge is usually more watery.
- Trichomoniasis discharge is usually itchy, frothy and greenish-yellow.
- Anaerobic vaginosis typically produces a discharge that is greyish in colour, adheres to the vaginal epithelium and has a fishy odour.

*It is difficult to reliably distinguish between the discharges caused by gonorrhoea, chlamydia, trichomoniasis, and anaerobic vaginosis on clinical examination alone, without laboratory investigations. For this reason, it is preferable to use syndromic management as described above.*

## LOWER ABDOMINAL PAIN or SCROTAL PAIN

If genital discharge (from gonorrhoea or chlamydia) is left untreated then infected females may develop lower abdominal pain as a result of Pelvic Inflammatory Disease (PID).

52 Similarly, infected, untreated males may develop pain in the scrotum as a result of Acute

Epididymo-Orchitis.

### **What is Pelvic Inflammatory Disease (PID)?**

P.I.D. is inflammation of the uterus and fallopian tubes usually as a result of infection with gonorrhoea, chlamydia or anaerobic bacteria.

### **Signs and symptoms of PID**

Patients complain of lower abdominal pain, backache, pain on sexual intercourse and sometimes vaginal discharge. With acute PID there may be a fever. On examination there is tenderness of the pelvic organs and tenderness with movement of the cervix.

### **Does she need emergency surgery?**

It is very important to distinguish PID from other causes of lower abdominal pain such as ectopic pregnancy or acute appendicitis. If the patient has these other problems she may need emergency surgery rather than medicines. Carefully question her to determine whether her menstrual period is delayed -- if so she may have an ectopic pregnancy (pregnancy growing in her tubes). Gently examine the abdomen to see if there is "guarding" (the patient holds her abdominal wall muscles tight) or "rebound tenderness" (excruciating pain after suddenly lifting your hands from the abdomen). These are signs that the patient may need emergency surgery. If you think she may have ectopic pregnancy or acute appendicitis REFER her immediately for further evaluation by a surgeon.

### **Treatment of PID**

Treatment of PID is similar to treatment of vaginal discharge.

- Treat for infection with gonorrhoea as above (with a single dose of Ciprofloxacin, Spectinomycin, Kanamycin or Gentamycin),
- but treat longer for chlamydia and anaerobic bacteria -- give 10 days of treatment with Tetracycline, 500 mg, QID PLUS 10 days treatment with Metronidazole, 400 mg, TID.
- Also give her paracetamol or aspirin, 2 tabs, 4 times a day for at least 2 days.
- Counsel the patient (see **The five C's for communication about STDs**)

### **What is Acute Epididymo-Orchitis?**

Acute Epididymo-Orchitis is severe inflammation of the testis and the tube leading from the testis (the epididymis) usually as a result of infection with gonorrhoea, chlamydia or non-STD.

### **Signs and symptoms of Acute Epididymo-Orchitis**

He complains of severe pain and sudden swelling of one or both of his testes. He may have had discharge from his penis. On examination, one or both of his testes are swollen and very tender.

### **Does he need emergency surgery?**

Especially if the pain is severe, if the patient is younger than 15 years or if he has no history of sexual exposure it is important to suspect that the pain may be due to torsion (twisting) of the testis. If you suspect torsion, REFER the patient immediately.

### **Treatment of Acute Epididymo-Orchitis**

Treatment of Acute Epididymo-Orchitis is similar to treatment of penile discharge.

- Treat for infection with gonorrhoea as above (with a single dose of Ciprofloxacin, Spectinomycin, Kanamycin or Gentamycin),
- but treat longer for chlamydia -- give 10 days of treatment with Tetracycline, 500 mg, 4 times a day. Also give him paracetamol or aspirin, 2, QID x 2d.
- Counsel the patient (see **The five C's for communication about STDs**)

## **STDS AFFECTING NEWBORN INFANTS**

Infants born to mothers with untreated gonorrhoea or syphilis can develop Ophthalmia Neonatorum or Congenital Syphilis.

### **Prevention of Ophthalmia Neonatorum and Congenital Syphilis**

- Screen and treat for gonorrhoea and syphilis at antenatal clinics

### **Signs of Ophthalmia Neonatorum**

Ophthalmia Neonatorum is purulent discharge from the eyes of a baby in the first 28 days of life.

### **Treatment of Ophthalmia Neonatorum**

- Kanamycin, 125 mg IM given as a single dose; PLUS
- Irrigate the eyes with saline or clean water every hour for eight hours then three times a day for 2 days. Teach the mother how to do this.
- Put in 1% tetracycline eye ointment every eight hours after the irrigation. Teach the mother how to do this.
- Infants should be reexamined after 48 hours.
- The parents should always be treated together with the baby.

### **Signs of Congenital Syphilis**

The baby may appear completely normal at birth or, if severely infected, may have signs.

Any system of the body may be affected. Typical early signs include:

- Skin rash -- various appearances (macular, papular, bullous, squamous, etc...)
- Distended abdomen due to liver and spleen enlargement
- Blood stained nasal discharge with nasal obstruction ("nasal snuffles")
- Joint swelling
- Various non-specific signs: anaemia, jaundice, etc...
- Diagnosis is usually made based upon a laboratory test of the mother and/or the infant (If the **mother is RPR positive during pregnancy**, the child should be treated at birth, even if the child has no signs or symptoms)

### **Treatment of Congenital Syphilis**

- For early congenital syphilis give Benzathine Penicillin as a single IM dose or Procaine penicillin, as a daily IM dose for 10 days. For either drug give 50,000 IU/kg
- The parents should always be treated together with the baby.

59

### Management of Genital Ulcer Syndrome

**How to recognize it:** Ulcers anywhere on the genitalia with or without bubos

**How to treat it:**

- **If there are no small blisters, then treat for syphilis and chancroid**
  - ◆ Give a single dose of Benzathine Penicillin 2.4 mega units stat IM PLUS Erythromycin 500 mg three or four times a day for 7 days; OR
  - ◆ If Erythromycin is not available and the ulcer is painless and does not easily bleed when pressed, then treat with Benzathine Penicillin alone. Otherwise, REFER
- **If there are small blisters then treat for herpes**
  - ◆ Apply 1% Gentian Violet paint daily for 1 week.
- For pain give paracetamol or aspirin
- If there are genital warts, treat with podophyllin 20% solution or electrocautery
- Counsel the patient (see The five C's for communication about STDs)
- Refer the patient if the ulcers do not show any sign of improvement after 7 days.

### Management of Genital Discharge Syndrome in Males

**How to recognize it:**

- Pus dripping from the penis (confirm this by asking the patient to show you);
- There may be Dysuria (burning pain when passing urine)

**How to treat it:**

- Treat for Gonorrhoea;
- also treat for Acute Chlamydia;
- also counsel the patient (see **The five C's for communication about STDs**).

## Management of Genital Discharge Syndrome in Females

### How to recognize it:

- Symptoms may be absent during early infection;
- There may be purulent vaginal discharge;
- There may be tenderness of the cervix when you move it during a vaginal exam;
- Speculum exam shows pus coming from the opening of the cervix or inflammation of the cervix.

### How to treat it:

#### A) If the woman is at risk of an STD and a speculum exam is not possible or if the speculum exam shows discharge coming from the cervix

- treat for Gonorrhoea;
- also treat for Acute Chlamydia;
- also treat for Trichomoniasis and Anaerobic Vaginosis;
- also counsel the patient (see **The five C's for communication about STDs**).
- Follow up in 7 days. If discharge persists treat further for candidiasis with nystatin vaginal pessaries each night for 7 days; OR clotrimazole, 200 mg per vagina daily for 3 days.
- Refer the patient if the symptoms do not improve with this treatment.

#### B) If the woman is not at risk of an STD or if the speculum exam shows no pus coming from the cervix

- treat for Trichomoniasis and Anaerobic Vaginosis
- also treat for Candidiasis

## Drug Regimens for Treatment of Genital Discharge Syndrome

### Gonorrhea:

Ciprofloxacin tablets 500 mg in a single dose; OR  
Spectinomycin, 2g in a single IM dose; OR  
Kanamycin, 2g in a single IM dose; OR  
Gentamycin, 240 mg in a single IM dose; OR

*If none of these drugs is available,*  
Cotrimoxazole, 10 tablets all at once each day for 3 days.

### Acute Chlamydia:

Tetracycline 500 mg, 4 times a day for 7 days; OR  
Doxycycline 100 mg, 2 times a day for 7 days; OR  
Erythromycin 500 mg, 4 times a day each for 7 days.

### Trichomoniasis and Anaerobic Vaginosis

Metronidazole, 2g in a single oral dose.

### Candidiasis

Topical gentian violet (GV) paint: Use a speculum and a gauze swab to paint the walls of the vagina with GV. Thereafter, once a day for 5 days the patient should insert a swab or tampon soaked in GV.

# TUBERCULOSIS

## TUBERCULOSIS IS A MAJOR AND GROWING HEALTH PROBLEM IN ZAMBIA

- ◆ TB accounts for about **one out of every six adult deaths** in Zambian hospitals.
- ◆ One third or more of Zambians carry the TB bacteria in their bodies.
- ◆ As many as 100,000 Zambians have active tuberculosis.
- ◆ The number of cases of tuberculosis reported each year has **more than tripled in the last 10 to 15 years largely as a result of the HIV epidemic.**

When **untreated, about half of the people with tuberculosis will die from the disease within two years.** The treatment regimens available in Zambia, however, can cure the vast majority of patients provided that treatment is begun at an early stage and the patients take all prescribed drugs regularly.

## HOW DOES THE DISEASE PRESENT?

- ◆ Tuberculosis can affect virtually any organ of the body.
- ◆ However, pulmonary TB (TB of the lungs) accounts for 80% of the cases seen in Zambia.

Thus, the most important way to diagnose TB is through testing the sputum of persons with chronic cough. A chronic cough is defined as **cough lasting more than 3 weeks.**

## HOW TO PREVENT TB

- ◆ The key to preventing TB is to **control its spread from people with chronic cough.**
- ◆ The prevalence of TB will also be reduced by **improvements in nutrition and housing and efforts to fight the spread of HIV/AIDS.**

**Community partnership and good rapport with patients are essential.**

- ◆ Anyone with chronic cough should be encouraged to **visit a health facility to be tested.**
- ◆ Considerable cooperation is required from TB patients and his or her family and community to **assure compliance with the prolonged drug therapy and to screen close contacts of the patient.**

To communicate effectively with the community and with individual patients the health worker must understand what the community already understands about TB. That is, the community must first teach the health workers rather than vice versa. When the health team understands the community's traditional views on TB (for example, how do they think it is caused, do they think it is transmitted from person to person, etc...), a bridge can be built between this understanding and the possibly quite foreign ideas of sputum microscopy and prolonged drug treatment. So the

initial step in efforts to improve on TB control should be discussions with community members

- ◆ to raise the health teams' understanding of community views on TB,
- ◆ to inform community members about how TB is controlled,
- ◆ to ask community members to help find suspected cases of TB, and
- ◆ to ask community members to help reduce treatment defaulting.

---

### **Involving the Community in TB Control**

---

**TB is a community disease and needs community action to fight it**

1. Find out what the community already knows about TB.
2. Help them to understand how it is transmitted and how drugs treat it.
3. Ask them to help you find the cases, and to ensure that people take regular treatment.
4. Ask them to help look after those very sick with TB.
5. Help them to find ways of improving their nutrition and housing.

### **BCG IMMUNIZATION PREVENTS SOME TUBERCULOSIS DEATHS IN CHILDREN**

Young infants should be immunized with BCG (0.05 ml intradermally) as soon as possible after birth. BCG does not prevent infection with TB, but rather acts by preventing the rapid spread of TB bacteria to other parts of the body. Thus, BCG helps to prevent TB meningitis and some other serious forms of TB in children. This partial protection lasts only for the first 10 to 15 years of life.

BCG should not be given to infants with AIDS as this live virus vaccine could harm persons who are already immune deficient.

## **HOW TO DIAGNOSE TB**

**Obtain sputum samples for microscopic examination from anyone who has been coughing for more than 3 weeks.** Box x.2 describes how to collect sputum for testing for tuberculosis. Other tests, including chest X-ray, sputum culture and Mantoux should be ordered only if three sputum smears are all negative. If three sputum smears are all negative and TB is still suspected, refer the patient to an experienced clinical officer, physician or preferably District TB/Leprosy Control Officer (DTLCO) for further management.

Other symptoms that a tuberculosis patient may have include haemoptysis (coughing of blood), chest pain, dyspnoea (shortness of breath), loss of body weight, fever and night sweats, loss of appetite, general malaise and weakness.

Diagnosis in children is difficult, because children seldom produce sputum. Diagnosis in children should be made primarily on history, clinical signs and symptoms, tuberculin testing and/or a changing radiographic picture. Clinical signs and symptoms in children with TB might include failure to gain weight or loss of weight, chronic cough or wheeze, fever of unknown origin for more than 1 week, swollen lymph nodes, loss of appetite, poor feeding, stiff spine/spinal hump, swelling of any joint not due to injury.

In all cases, remember that tuberculosis is much more common in persons who have been in close contact with another person with active pulmonary tuberculosis.

## **CASE DEFINITIONS**

There are 3 different classifications of TB patients:

- a) Smear-positive pulmonary TB -- a patient with at least 2 sputum specimens positive for AFB or with only one sputum specimen positive for AFB and either consistent X-ray findings or a sputum culture positive for TB.
- b) Smear-negative pulmonary TB -- a patient without any sputum specimens positive for AFB, but who has a sputum culture positive for TB or a chest X-ray consistent with active TB.
- c) Extrapulmonary TB -- a patient whose tissue samples or clinical signs are consistent with active TB at a site other than the lungs.

## **WHERE THE TUBERCULOSIS PATIENT SHOULD BE TREATED**

Hospitalization in itself has little or no effect on the outcome of treatment. A patient who complies with the treatment regimen will do equally well, whether as an in-patient or out-patient. Before chemotherapy is started, health staff should discuss with the patient the feasibility of him/her being given drugs daily under direct observation of health staff. Admission is necessary

for severely ill patients and for those with complications of tuberculosis (e.g. hemoptysis, pneumothorax) or other serious disease. Patients on re-treatment (that is, patients who have failed a previous treatment) should preferably be admitted for the initial phase of three months.

A patient with a new case of TB can be treated entirely as an outpatient if the following conditions can be fulfilled:

- a) For the first 2 months drugs can be administered daily under direct observation of health staff who immediately record the drugs administered during each visit;
- b) During the first 2 months the patient is strong enough to visit the health facility daily and can afford daily transport;
- c) The patient and his/her relatives have been well informed about the importance of daily attendance for the sake of the patient's own health;
- d) The identity and address of the patient are properly recorded and health staff are available to contact the patient at home should s/he fail to come for treatment;
- e) The treatment centre is closely supervised by the DTLCO.

Otherwise, inpatient treatment may be necessary during the first two months.

After the initial two months of treatment of a new TB patient, drugs are mostly self-administered by the patient who should attend an outpatient clinic at four-weekly intervals.

## **PATIENT EDUCATION**

It is the task of general health staff to educate TB patients about their disease. Education is essential for obtaining the patient's cooperation with the required treatment. TB patients have to take drugs on a strict and regular basis. It is difficult for most people to comply with medical treatments of such a long duration. TB patients need much support from medical staff and their family throughout their treatment course. It is important to keep in mind that **patient education is a dialogue, not a lecture.**

## **HIV/AIDS AND TB**

The HIV epidemic has led to a dramatic increase in the incidence of active tuberculosis in Zambia and elsewhere in the world. This is because HIV reduces a patient's immunity leading to activation of TB infection. Nevertheless, an efficient national TB programme can still effectively cure TB in HIV positive patients and control the spread of the disease. The TB cure rate is similar in HIV positive and HIV negative patients when treatments are taken as prescribed. On the other hand, up to 20% of HIV positive patients develop a hypersensitivity reaction while on anti-tuberculosis treatment and this may require some change in therapy after consultation with the DTLCO.

Routine HIV testing of all TB patients is not recommended. In any case, HIV testing should not

be done unless the patient is properly counseled before and after HIV testing.

## TUBERCULOSIS TREATMENT REGIMENS

*Tuberculosis patients with confirmed TB are entitled to anti-tuberculosis drugs free of charge.*

There are 5 different drugs available for treatment of TB: Ethambutol (E), Pyrazinamide (Z), Isoniazid (H), Rifampicin (R) and Streptomycin (S). Rifampicin is usually only available in combination with Isoniazid as a drug called RIFINAH. Different combinations of these drugs are given to a TB patient depending upon the phase of treatment and the category of the patient. TB bacteria rapidly develop resistance if a patient is treated with a single drug. **Never use a single anti-TB drug.** Always use an appropriate combination of drugs.

The treatment of TB is divided into 2 phases. At least 3 drugs are needed during the initial **intensive phase** (the first 2 months of treatment of a new TB patient) while at least 2 drugs are required for the following **continuation phase** (the final 6 months of treatment for a new TB patient). During the intensive phase the patient must come to the clinic daily-- each day health staff must directly observe and record the treatment. During the continuation phase patients visit the clinic once each four weeks to collect a four week supply of anti-TB drugs.

There are 4 different categories of TB patients:

**CATEGORY I: NEW CASES OF SMEAR-POSITIVE TB** and other newly diagnosed seriously ill patients with severe forms of TB (meningitis, disseminated TB, spinal disease with neurological complications)--

This category of patients is accorded the **highest priority in treatment and follow-up** since smear-positive patients who have not previously been treated constitute the major sources of infection in the community.

**Treatment regimen for Category I patients: 2HRZE/6HE**

This means that these patients should receive an intensive phase of 2 months of daily, supervised treatment with Isoniazid, Rifampicin (the Isoniazid and Rifampicin are given together in the form of RIFINAH), Pyrazinamide and Ethambutol followed by a continuation phase of 6 months of daily, unsupervised isoniazid and ethambutol. Note that streptomycin is not included in this regimen. For TB meningitis, the continuation phase is prolonged to 10 months.

Follow-up sputum smears from these patients are collected and examined for AFB after 2, 5 and 8 months of treatment. If the sputum is still positive for AFB after 2 months of treatment then the DTLCO will advise the health staff administering the treatments to continue the daily, supervised HRZE (also called Short-Course Chemotherapy or SCC) for a 3rd month after which

they should stop treatment for 2 to 3 days then collect sputum to be sent for culture and sensitivity testing at the Chest Diseases Laboratory in Lusaka.

**CATEGORY II: RELAPSES AND TREATMENT FAILURES.** A relapse is a patient who was previously declared cured who comes with a fresh episode of smear-positive TB. A treatment failure is a patient who remains smear-positive 5 months or more after the start of treatment. Before beginning treatment for this category of patient, the DTLCO will first request 2 pre-treatment sputum specimens to be sent to Lusaka for culture and sensitivity testing.

**Treatment regimen for Category II patients: 2HRZES/1HRZE/5HRE**

This means that these patients should receive an intensive phase of 3 months of daily, supervised treatments. For the first 2 months of the intensive phase these patients receive daily injections of streptomycin (S) in addition to the standard Short-Course Chemotherapy drugs (HRZE). Note that **streptomycin should not be given to pregnant women**. For the third month of the intensive phase, Category II patients receive HRZE without streptomycin.

A smear should be obtained at the end of 3 months of treatment. If the smear is negative (no AFB seen) the patient receives another 5 months of daily, unsupervised continuation treatment with HRE. If the smear is still positive at the end of the first 3 months of intensive treatment of a Category II patient then the health worker should work closely with the DTLCO to carefully manage the patient -- with careful follow-up there is still a good chance of cure.

**CATEGORY III: SMEAR-NEGATIVE PULMONARY TB** and patients with less serious cases of extrapulmonary tuberculosis.

**Treatment regimen for Category III patients: 2HRZ/6HE**

**PAEDIATRIC TB--** patients 12 years and below

**Treatment regimen for Paediatric TB patients: 2HRZ/4HR**

In this instance, daily, supervised treatments should be given during both the intensive and the continuation phases.

## **REPORTING**

Good record keeping is essential to the success of TB control efforts. General clinical staff are responsible for completing several forms:

a) AFB request form -- Care should be taken that the address is properly filled in so that the

patient can be traced in case the result is positive and the patient has not returned:

b) Individual patient record;

c) TB Treatment Register -- This register must be maintained at each clinic where treatment is administered. Each patient on TB drugs in the clinic must be recorded on the register. Tracing of defaulters should be recorded in the register by writing DT and the date of the tracing in the "REMARKS" column of the register.

## **FOLLOW-UP and DEFAULTER TRACING**

Defaulting and poor compliance are the major reasons for the low success rate of TB treatment. Patients need to attend the clinic daily during the intensive phase and monthly during the continuation phase. Failure to attend clinics may lead to treatment failures and development of drug resistance. **Consequently, follow-up is as important as the selection and supply of drugs.**

At clinic level, at the end of each week a clerk or a health worker should review the TB Treatment Register to identify defaulters. Follow-up at home is needed for any TB patient who fails to attend 14 consecutive days during the intensive phase or who fails to attend 2 consecutive months during the continuation phase. Defaulter tracing is the responsibility of the general health staff who have volunteered or have been assigned this task. In addition, the Home-Based Care teams, Community Health Workers and/or Neighborhood Health Teams should be involved in the care of TB patients and can help in tracing defaulters.

## **How to test sputum for tuberculosis**

**Any health facility with a microscope and laboratory staff should be able to exam the sputum for TB bacteria (also referred to as AFB).**

To test sputum for AFB carry out the following steps:

- a) Fill out an AFB laboratory request form;
- b) Write the patient's name on the side and the lid of a sample container;
- c) Explain to the patient the reason for the test. Ask him/her to cough deeply to produce sputum and spit it into the container. Explain to the patient that saliva is not the same as sputum. Ask the patient to repeat coughing until 3 to 5 ml of sputum has been obtained.
- d) Place the lid on the container and store it in a cool and dark place until it can be sent to the laboratory.
- e) Collect one specimen on the spot. Give the patient a specimen container and ask him/her to collect a second specimen at home the following morning. Collect a third specimen when the patient returns (preferably the following day).
- f) The three specimens should be sent to a laboratory and tested within 5 days after they were collected.

## TUBERCULOSIS TREATMENT REGIMENS

### Anti-TB drugs:

Isoniazid (H), Rifampicin (R), Pyrazinamide (Z), Ethambutol (E) and Streptomycin (S)

### TB treatment phases:

Intensive phase-- daily, directly observed treatment at the clinic

Continuation phase-- patient visits the clinic once each four weeks to collect drugs

### Categories of TB patients:

Category I: **New cases of smear-positive TB** and severe forms of extrapulmonary TB

Category II: **Relapses and treatment failures**

Category III: **Smear-negative pulmonary TB** and less serious extrapulmonary TB.

Paediatric TB-- patients 12 years and below

### Treatment Regimens:

		CATEGORY			
		I	II	III	Paediatric
Intensive phase	duration	2 months	3 months <sup>1</sup>	2 months	2 months
	drugs	HRZE	2HRZES/1HRZE <sup>2</sup>	HRZ	HRZ
Continuation phase	duration	6 months <sup>3</sup>	5 months	6 months	4 months <sup>4</sup>
	drugs	HE	HRE	HE	HR
Follow-up sputum smears for AFB (months after beginning treatment)		2, 5 & 8	3, 5 & 8	2, 5, & 8	2, 4 & 6

<sup>1</sup>Before beginning treatment obtain 2 pre-treatment sputum specimens to be sent to Lusaka for culture and sensitivity testing

<sup>2</sup>For the first 2 months injections of streptomycin (S) are given in addition to HRZE. For the third month HRZE is given without S

<sup>3</sup>For TB meningitis, the continuation phase is prolonged to 10 months

<sup>4</sup>Daily, directly observed treatments in clinic

**Daily Dosages of Anti-Tuberculosis Drugs**

Drug	Pre-treatment weight		
	<u>over 50 kg</u>	<u>49-33 kg</u>	<u>less than 33 kg</u>
Isoniazid, 300 mg	1 tab	1 tab	--
RIFINAH (Rifampicin 450 mg/ Isoniazid 300 mg)	1 tab	1 tab	--
RIFINAH (Rifampicin 150 mg/ Isoniazid 100 mg)	4 tabs	3 tabs	2 tabs
Ethambutol, 400 mg	2-3 tabs	1-2 tabs	1 tab
COMBINED TAB Ethambutol 400 mg/ Isoniazid 150 mg	2 tabs	2 tabs	--
Pyrazinamide, 500 mg	4 tabs	3 tabs	2 tabs
Streptomycin, IM injection*	1 g	0.75 g	0.5 g

For children weighing 20 kg or less:  
Streptomycin 20 mg/kg, Rifampicin 10 mg/kg, Pyrazinamide 30 mg/kg,  
Isoniazid 10 mg/kg

\*Dosage for patients aged 40 years or more should not exceed 0.75 g.  
Never give streptomycin to pregnant women

# WATER SUPPLY AND SANITATION

## Extent of the Problem

[this section is being developed by Mrs. Hope Nkoloma

**Current situation** in Zambia of safe water and sanitation:

A national survey has shown that only about 43% of rural Zambians have access to safe water supply from a protected well, borehole or spring. One third of these safe water points are in need of rehabilitation.

**Health problems** caused by poor water and sanitation:

Many of the most important health problems afflicting Zambians are caused by poor water supply and sanitation

- Diarrhoea
- Dysentery
- Cholera
- Typhoid
- Hepatitis
- Intestinal worms including round worm, hookworm and whipworm
- Amoebae and giardia
- Schistosomiasis
- Scabies
- Trachoma

**Gender issues** -- water supply has been a female burden. Improvements in access to water will help free up girls' and women's time and thus benefit all of the family.]

# Sources of Water for Small Communities

## 1. Surface water

Surface waters (rivers, streams, ponds, lakes, marshes) easily become polluted. Thus, water from these sources must be disinfected (e.g. through chlorination or boiling) before it can be used for drinking. The water should be drawn from a location that is upstream of, and as far away as possible from, sewage dumping sites, industrial waste discharge sites, drainage from agricultural sites, etc....

## 2. Groundwater

Groundwater (water drawn from wells and boreholes) is generally the most suitable for small communities. It is essential, however, to protect these underground sources from contamination. Consequently, the well should be as remote as possible from any source of pollution such as latrines.

### 2.1 Open, shallow, hand-dug wells

Open shallow wells are one of the most common sources of water in rural and periurban communities. The water filling these wells comes from soil close to the surface. Thus, these wells can be easily contaminated by water that soaks down from the surface carrying germs from human and animal feces nearby. An example of a properly protected well is shown on the right.

#### *Checklist for hand-dug wells*

- Is the water-raising system (buckets, ropes, etc...) inaccessible to users and animals?
- Is there an impermeable wall (parapet) surrounding the well to prevent surface water from entering?
- Is there an impermeable (uncracked) platform extending at least 1 meter out from and surrounding the well to prevent surface water from entering the well? Is the area surrounding the well properly drained so that water drains away from the well and does not collect in stagnant pools within 2 m of the well?
- Are any latrines and other sources of pollution (e.g. animal excreta, rubbish, etc...) sited at least 10 m away from the well and downhill from the well?
- Are the walls of the well sealed for 3 m below ground to prevent surface water from entering?

### 2.2 Boreholes

By drilling a well it is possible to reach water deep in the ground that is far from the surface and thus less likely to be contaminated.

### *Checklist for drilled wells*

- Does the well casing extend 30 cm above the platform? Is the casing unbroken? Is the pump sealed to the base to prevent surface water from entering the pump?
- Is there an impermeable (uncracked) platform extending at least 1 meter out from and surrounding the well to prevent surface water from entering the well? Is the area surrounding the well properly drained so that water drains away from the well and does not collect in stagnant pools within 2 m of the well?
- Are any latrines and other sources of pollution (e.g. animal excreta, rubbish, etc...) sited at least 10 m away from the well and downhill from the well?
- Does the well casing extend at least 3 m below ground? Is the casing unbroken?

### **3. Springs**

Spring water normally comes from deep in the ground and is free from contamination. However, the water may be contaminated at the site where the water comes to the surface and is collected. To prevent spring water from being contaminated by surface water, a ditch should be dug about 15 m uphill from the spring collection site to channel away rainwater runoff. A collection box should be built to collect the spring water and keep the collection site from being contaminated. The collection box should be cleaned out periodically. Thus, an inspection manhole should be provided as well as a locked manhole cover to prevent unauthorized access, and a drain at the bottom of the collection box. An example of a properly protected spring is shown in the figure to the right.

### *Checklist for springs*

- Is there a surface-water diversion ditch uphill from the spring?
- Is the spring protected by an impermeable (uncracked) masonry or concrete collection chamber?
- Are all openings to the collection chamber protected against the entry of animals and direct access of humans?
- Is the collection chamber cleaned periodically? Is there a manhole with a locked cover for entering and cleaning the chamber? Is there a draining tube? Is the chamber free of silt and animals?
- Are any latrines and other sources of pollution (e.g. animal excreta, rubbish, etc...) sited at least 10 m away from the spring and downhill from the spring?
- Is there a fence to keep animals at least 10 m away from the spring?

## Sanitation Options

- A few, well-run latrines serving institutions such as health centres and schools can have a powerful demonstration effect.
- Pressure and persuasion will rarely convince people to adopt improved sanitation.
- Rural latrines should generally be built for individual households. Household holders will then be responsible for maintenance. Communal village latrines are less likely to be adequately maintained and thus, less likely to be used.
- When choosing sites for latrines, the first factor to consider is the wishes of the users. Latrines need to be within a certain minimum distance of houses if they are to be used at night; but unless they are well ventilated, they should not be inside the house structure.
- The pit should be as deep as possible to ensure it has a long life, but pits of more than 3 m depth may be dangerous to diggers unless shoring is used, which increases the cost.
- The cross-section of the pit need not be larger than the minimum space required by the digger: 1 m diameter would be typical.
- Slabs or squatting plates should never be made of clay, unreinforced concrete or soil-cement. To make reinforced concrete slabs, first pour a 25 mm depth of concrete, let it harden partially, then place reinforcing bars or wire mesh then pour another 15 mm or more of concrete.

### Open defecation

Where there are no latrines people resort to defecation in the open. Open defecation encourages flies, which spread around faeces related diseases. In moist ground the larvae of intestinal worms develop and faeces and larvae may be carried by people and animals. Surface water run-off from places where people have defecated results in water pollution. Thus, in view of the many health hazards, open defecation should not be tolerated in villages and other built-up areas. Better options are practical for even the poorest of households.

### Shallow pit

People working on farms may dig a small hole each time they defecate and then cover the faeces with soil. Pits about 300 mm deep may be used for several weeks. Excavated soil is heaped beside the pit and some is put over the faeces after each use. Flies breed in large numbers and hookworm larvae spread around the holes. Hookworm larvae can migrate upwards from excreta buried less than 1 m deep, to penetrate the soles of the feet of subsequent users.

Advantages	Disadvantages
No cost	Usually impractical for long-term use n near to a community Considerable fly nuisance Spread of hookworm larvae

### Simple pit latrine

This consists of a slab over a pit which may be 2 m or more in depth. The slab should be firmly supported on all sides and raised above the surrounding ground so that surface water cannot enter the pit. If the sides of the pit are liable to collapse they should be lined.

<b>Advantages</b>	<b>Disadvantages</b>
Low cost	Smell
	Fly and mosquito nuisance

### Ventilated Improved Pit (VIP) Latrines

The VIP latrine consists of a pit on which is placed a concrete slab containing two holes. One hole is for defecation into the pit. The second hole holds an upright vent pipe 2 to 3 m tall and at least 15 cm in diameter. The top of the vent pipe is covered with glass-fibre or plastic mesh to prevent passage of flies and mosquitoes. The actual privy building is deliberately kept small and dark. As a result the strongest light reaching the pit comes from the vent pipe. Thus, flies in the pit are attracted to the top of the vent pipe and they tend to stay in the vent pipe until they die. Flies outside the system are preferentially attracted, by smell, to the top of the pipe, and they seldom enter the toilet itself. As the vent pipe is heated by the sun, the air inside rises. This movement of air up the pipe sucks obnoxious gases out of the pit. The air escaping up the pipe is replaced by air drawn into the pit through the squatting hole. Thus, little or no odours are noticeable in the privy itself.

<b>Advantages</b>	<b>Disadvantages</b>
Minimal odour	The privy building and the vent pipe cost somewhat more than the materials for other latrines
Minimal breeding of flies and mosquitoes	

## **Water and Sanitation Standards for Practice at the Health Center**

Health centre staff should act as role models to demonstrate improved water and sanitation practices:

- Construction, maintenance and use of VIP latrines;
- Hand washing with soap;
- Refuse disposal

The Ministry of the Health has specified that all Zambian health centres should meet the following minimum physical standards. If your health centre does not meet these standards, then appropriate physical improvements should be budgeted for, planned and implemented.

- A safe water supply (e.g. protected well) within 150 metres;
- At least three VIP latrines for staff and patients;
- A deep pit for secure disposal of refuse including sharps and expired drugs

## **Water and Sanitation Standards for Practice in the Community**

### **I. SURVEYING THE CATCHMENT AREA OF THE HEALTH CENTRE**

District health officials have assigned to your health centre the responsibility to address the health needs of communities in your area. To plan community-based work staff from the health centre must survey this catchment area to take an inventory of all:

- Communities including estimates of each of their populations and whether each has a functioning neighborhood committee;
- Water points including wells, springs, sites for obtaining surface water and public standpipes.
- Public buildings including schools and government offices and whether each has latrines/toilets and a proper site for refuse disposal;
- Markets

This information is best displayed on a hand drawn map of the catchment area. The same map can show roads and bodies of water of public health importance (such as dambos or streams where mosquito breeding or schistosomiasis are

73

problems). An important resource to help you survey the water points in your catchment area is the Map Catalogue which the WASHE program has prepared of your district. This catalogue includes maps showing the location and state of repair of wells and boreholes in your area. An example of such a map is shown on the previous page.

## II. COMMUNITY MOBILISATION AND HEALTH EDUCATION

[this section to be developed by Mrs. Hope Nkoloma based upon the WASHE approach.

Standards for community mobilization might include:

- assure that there is a functioning neighborhood committee in each community;
- discuss water and sanitation issues with each neighborhood committee at least once each quarter, etc...]

Health and hygiene practices which are imposed or prescribed by outsiders are often not effective or not sustained overtime. A participatory approach to health and hygiene education promotes

- community and household ownership of the process
- confidence, dignity, choice and awareness
- co-operation and partnership

Participatory health and hygiene educations starts with the community and the individuals in it and identifies their needs and then works in partnership to find solutions. Its aims to ensure healthier communities that are self-reliant and able to contribute effectively to a community's management of their own resources. By Community Management we mean: the ability of the community to have responsibility, authority, accountability and control of efforts to improve water, sanitation and other aspects of health in the community.

Health and hygiene education is about personal choice, behavior, perception and attitudes. Facilitating changes in water and sanitation practices is difficult. Through working with the whole community it is hoped that the members of themselves will take the role of advocate, speaking with their neighbors in favor of change. As a unit, the community is a strong force that can persuade each other from within. The role of the facilitator is to empower the community to do this.

When working with the community take the following into account:

- who in the community are you trying to influence and which members you think will assist this process;
- work with extension staff who know the community;
- work *with* the community members, not *for* or *at* them;
- do not expect change to happen overnight;
- base your next step on the outcome of the previous step

### III. MONITORING WATER AND SANITATION

**[this section is to be developed based upon guidelines that are now taught at Chainama College to environmental health technicians]**

e.g. "Once each week/month/quarter (to be specified) inspect each water point, market, public latrine"

#### IV. EPIDEMIC RESPONSE

This sections provides guidelines for what to do during an outbreak of cholera. Similar principles apply during an outbreak of dysentery or any water borne disease.

##### **When to suspect cholera**

###### **Cholera should be suspected when:**

- A patient, 5 years of age or older, develops severe dehydration or dies from acute watery diarrhoea;
- There is a sudden increase in the daily number of patients seen with acute watery diarrhoea, especially patients who pass the “rice water” stools typical of cholera.

###### **A case of cholera is confirmed when:**

- A laboratory isolates *Vibrio cholerae* type O from any patient with diarrhoea.

Immediately report any case of suspected cholera to district health officials. The diagnosis should be confirmed by laboratory investigations.

Once cholera has been confirmed to be present in your area you do not need to confirm all subsequent cases, but you should continue to report as suspected cholera all cases of acute watery diarrhoea in patients 5 years of age or older. Recording the date and place of suspected and confirmed cases of cholera, preferably on a map, can help identify and control sources of transmission.

##### **Control of a Cholera Outbreak Depends Upon...**

- Early detection and treatment of people with cholera
- Informing people how to control spread of the disease
  - \* Safely Dispose of human faeces and vomit
  - \* Wash your hands
  - \* Drink only safe water
  - \* Handle food safely

###### **Ineffective control measures**

Efforts to control cholera through vaccination, mass treatment of entire communities or travel restrictions are ineffective and counter-productive.

###### **Death from cholera is avoidable**

If the health services are not well prepared, cholera can cause death in as many as 50% of severe cases. However, where health facilities are well organized, with trained staff and essential supplies of ORS, IV fluids and erythromycin, less than 1% of patients will die.

## Key Points for Public Education About Cholera

### ***Remember***

- With proper treatment, cholera is not fatal
- Take patients with suspected cholera immediately to a health worker for treatment.
- Give increased quantities of fluids (ORS if it is available) as soon as diarrhoea starts.

### ***To Prevent Cholera***

- **Safely Dispose of human faeces and vomit**
  - \* Defecation on the ground is dangerous to the whole community
  - \* Use a latrine (if necessary dig a temporary shallow pit latrine)
  - \* Children's faeces and vomit should also be collected and disposed of properly
- **Wash your hands**
  - \* Always wash with soap (or ash)
  - \* Wash after defecating or after any contact with faeces or vomit
  - \* Wash before you prepare or serve food
  - \* Wash before you eat and before you feed your children
- **Drink only safe water**
  - \* Drink only water from a safe source (protected well, borehole, spring, ....
  - \* .... OR Drink Water that has been boiled or chlorinated
  - \* Store and handle water safely -- otherwise it can become contaminated.  
Pour from the water container-- do not dip a cup into the container.  
Use the water within 24 hours.
- **Handle food safely**
  - \* Cook food or reheat it thoroughly, and eat it while it is still hot throughout
  - \* Avoid uncooked food unless it can be peeled or shelled

### **Making Water Safe by Chlorination**

**Note: Chlorination will not make cloudy water safe.**

- Remove the cloudiness first by filtering the water or letting it settle

**Make a stock solution of chlorine (1% concentration)**

- Add to 1 litre of water 33 grams of bleaching powder
- Store the stock solution in a cool dark place and use it or discard it in 1 month

**Use the stock solution to make safe water**

- To each 1 litre of water add 0.6 ml (3 drops) of stock
- Allow the chlorinated water to stand for at least 30 minutes before using it.

**If possible, test the water to confirm that it contains enough chlorine**

- Use a DPD water testing kit to measure the residual chlorine level
- The residual chlorine level should be between 0.2 and 0.5 mg/litre
- If possible, during an outbreak test the residual chlorine level of water coming from public standpipes and other faucets.

### **V. KEY REFERENCE DOCUMENTS**

[brief list to be developed]