

IMMUNIZATION IN PRACTICE

A Guide for Health Workers who give Vaccines



TRAINER'S GUIDE

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- Module 1 - Vaccines and how to look after them.
- Module 2 - Syringes, needles and sterilization.
- Module 3 - When and how to give vaccines.
- Module 4 - Preparing for an immunization session.
- Module 5 - How to conduct an outreach immunization session.
- Module 6 - Health education in an immunization programme.
- Module 7 - How to evaluate your immunization programme.
- Module 8 - Preventing neonatal tetanus.

TRAINER' GUIDE

This set of 8 texts, or modules, together with the Trainer's Guide make up a training manual for health workers who will give vaccines.

The texts explain what vaccinators need to know about immunization, and they describe and illustrate what vaccinators must be able to do.

A "controlled" or simplified style of English is used so that more trainees can read the material, even though this is not their first language, and so that the text is easier to adapt and to translate into other languages.

However, health workers can not learn all that they need from a book, or from lectures. They need practical exercises as well. So, in addition to factual text, a number of suitable exercises and other training ideas are included. The Trainer's Guide includes suggestions for practical exercises, as well as answers and comments for the questions and exercises in each module.

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TRAINER'S GUIDE.

PART 1

Arrangement of the material

Supplementary materials and where to obtain them

Different kinds of exercise

How to plan a course or workshop

PART 2

Suggestions for practical exercises

PART 3

Answers and comments on the exercises in Modules 1-8

INTRODUCTION

This set of eight texts, or modules, together with the Trainer's Guide, make up a training manual for health workers who will give vaccines.

The texts explain what vaccinators need to know about immunization, and they describe and illustrate what vaccinators must be able to do.

However, health workers cannot learn all that they need from a book, or from lectures. They need practical exercises as well.

So, in addition to factual text, a number of suitable exercises and other teaching ideas are included. The Trainer's Guide includes suggestions for practical exercises, as well as answers and comments for the questions and written exercises in each module.

The text and the exercises together should enable a trainer to plan a complete course on immunization appropriate for their trainees. The material is flexible and general enough to be relevant and useful in many countries, though trainers everywhere will have to adapt it to their own particular programme.

For example, in some countries trainers will already know how to sterilize their instruments. In some places, vaccinators are still being trained who do not have these skills. Many countries will be changing from boiling, to steam sterilization. So all the necessary information is included to be used or omitted according to local circumstances.

In case training for the use of the growth chart is required, you may wish to request the training module "Training in recording the Child's Growth" (EPI/PHW/83/TM.1/Rev.2).

The "Cold Chain", and management and supervision in the immunization programme are not discussed in detail: nor are the clinical features and treatment of the "target diseases". Workers in any immunization programme of course need to know something about these important subjects. However, they are described in detail elsewhere, and our concern here is specifically the tasks necessary to give vaccines, and the last link of the "cold chain".

PART 1

Arrangement of the material

Supplementary materials and where to obtain them

Different kinds of exercise

How to plan a course or workshop.

1. ARRANGEMENT OF THE MATERIAL

This series of modules contains all that a health worker at the operational level needs to know in order to conduct immunization sessions, including:

- minimal theory
- technical skills
- organization
- personal and social skills

Each task is described step-by-step, and there are many illustrations, so that a trainee can learn what to do directly from the modules.

Exercises

The text contains many exercises, both theoretical and practical, to make the learning more interesting, varied and effective.

Practical exercises take longer to prepare and longer to do than ordinary lectures. But trainees learn quicker and remember longer when they learn actively in this way. They enjoy the course more, and they work more effectively afterwards.

Exercises that the trainers must organize for the trainees, are included in Part 2 of this Trainer's Guide.

Exercises that trainees or readers can do by themselves without help occur in the text of each module after the descriptive material to which they relate. The answers and comments for these exercises are in Part 3 of this Trainer's Guide.

Different ways to use the material

We describe many learning activities as if they were part of a course. But the material can be used in other ways equally well:

- for basic training in any health workers' training school
- for refresher training - choose whichever sections are needed
- for "in service" training
- to teach yourself.

You will find it helpful to read through the material yourself before you decide how to use it for your students.

2. SUPPLEMENTARY MATERIALS AND WHERE TO OBTAIN THEM

From: Expanded Programme on Immunization (EPI)
World Health Organization
1211 Geneva 27, Switzerland.

Slide sets: (with notes in English and French)

"Recognize the Disease" - 30 slides
"The Cold Chain" 1.Looking after your vaccines (20 slides)
2.Looking after your cold chain equipment
(20 slides)

Films: "The Cold Chain" - 6 minute animated colour film.
Arabic, English, French, Portuguese, Spanish.
"The Cold Chain - or How vaccines Should be Handled"
English and French.

Posters: "Recognize the Disease" (Folder and posters) English and French
"Preventing neonatal Tetanus" (Flipchart and poster)
English and French
"Has your DPT or TT vaccine been frozen?" English, French,
Spanish.
"Look after your vaccines" English and French
"Look after your Cold Chain equipment" English, French.
"Look after your vaccines every day, every week, every month"
Three comic strip posters, English, French
"Love your refrigerator" English, French, Unlabeled.
"This refrigerator protects lives" Arabic, English, French,
Spanish.
"Only use sharp, straight needles"
"Rinse, clean then sterilize"
"Vaccine vials. Finish or destroy open vials"
English, French.
"One syringe, one needle for each injection", English, French
"Rinse, clean then sterilize" (Pressure method), English, French
"Vaccine cold chain monitor" English, French

Stickers: "Defrost when ice builds up" English
"STOP - do you need to open it?" Arabic, Chinese, English,
French, Spanish.
"Vaccine - RUSH" Arabic, English, French, German.
"EPI logo" No text

From TALC (Teaching Aids at Low Cost)
Box 49, St. Albans.
Herts, AL1 4AX, UK

Slide Sets:

- "Clinical signs in Six Target Diseases"
(24 slides adapted from "Recognize the Disease" set with more detailed notes)
- "The Cold Chain - vaccines and equipment"
(48 slides with detailed notes adapted from the WHO slides on the Cold Chain)

Book: "How to look after your refrigerator" Jonathan Elford
(also available from AHRTAG, 85, Marylebone High Street,
London W1M 3DE, UK)

3. DIFFERENT KINDS OF EXERCISE

Multiple choice questions

To reinforce and test theoretical knowledge.

Examples and lists

To provide practice in planning, use of tables, record keeping, etc.

Questions in the text

To stimulate trainees to think things out for themselves.

There is a blank space below these questions for trainees to write their answers.

Skills demonstrations and practice

To teach skills and techniques, in the classroom, and as much as possible at a health centre or outreach site.

How to give a demonstration

1. The trainer must demonstrate the procedure step-by-step.
 - Make sure that ALL the equipment that you need is ready BEFORE the demonstration.
 - Place the trainees around you so that everybody can HEAR and SEE.
 - Explain what you are going to do.
 - Do the demonstration slowly and explain at the same time.
 - Talk to the trainees to find out if everybody has understood.

2. Each trainee must practice the procedure themselves.
 - They must practise with the equipment that they will use in their own programme.
 - Make sure that you have enough equipment for them all.
 - They can work in small groups of 2 or 3, but each trainee MUST do ALL the tasks.
 - Practice must be as close to the real life situation as possible.

Group discussion

To help people learn appropriate attitudes to their work, especially about organization and interpersonal skills.

People accept and remember ideas better if they can talk about them.

Everybody has a better chance to talk when they are in small groups than when they are in a large class. The text gives a few ideas for suitable topics.

Leading a group discussion

The trainer should be friendly, and should make the trainees feel comfortable and at ease.

The trainer's role is to LEAD the group discussion to help people to arrive at a useful conclusion. Then he must help the trainees to DRAW THEIR CONCLUSION. If there is no leader, people may not learn from the discussion - they may only say again what they know already.

Case Studies and "fault finding" exercises

To help trainees to practice applying their knowledge and to think about their work in a more human context.

People can do these exercises by themselves, and write the answers; or they can do them in groups and discuss the answers; or, if you have time, do both, for example, for one or two exercises that you feel are particularly important.

Role play

To help trainees to practise organizing themselves to do a task, and to help develop their interpersonal and communication skills.

"Role play" means pretending to be someone, and acting out a situation as if you were that person. For example, one person plays the role of "vaccinator", and another person the role of "mother", and they "play" the mother taking her baby to be immunized.

They do not prepare the exact words or actions with the other role players; they say and do things as they go along, according to what the others say and do. (So this is different from a prepared drama.)

- Decide in advance what the situation will be.
- Decide who will play the various roles: the others are the audience.
- Make sure that you have ALL THE EQUIPMENT that you need ready before the session.

- Give the role players time to think about what they are going to do.
- The audience must watch quietly until the players have finished.
- After the performance, the audience comments on and discusses what they saw.
- Players may also join the discussion - a "mother" may not like how the "vaccinator" immunized her child;

Drama

The main use of prepared drama is for health education of the public. However, it can be used to help trainees, in the same way as role play.

Sometimes trainees may have their own ideas about a story; sometimes you can give them an idea to work on.

The play should show one problem, and the audience should discuss it afterwards.

- Give trainees time to prepare, and to find the right clothes and "props" (tools, furniture, clothes, dolls, household things) so that they can look like the people whom they act.
- After they have prepared the story, check it through with them, to make sure that the message is correct.
- First they should rehearse the play in front of their colleagues; then they can perform for a group from the community, such as mothers or a village meeting.
- After the performance, ask the audience questions like these:

What did you see in the play?

What happened?

Does this happen in this community?

Why does it happen?

Is it an important problem?

What are the solutions to the problem?

CASE STUDY - The talkative audience

Mrs. Nauno, the District Public Health Nurse, visited the school for Family Educators. Dr. Pari was one of the teachers, and she was very keen on modern ways of learning - especially role play. She invited Mrs. Nauno to see the students do a role play exercise that they had prepared. Mrs. Nauno was very pleased - she had never seen a role play. The students were happy to have a visitor.

One of the students explained the story:

"A mother arrives at the health centre with her baby. The mother is very worried because the baby does not want to suck. It is coughing, and sometimes it seems to stop breathing. The health worker takes the case history, and examines the baby. She finds out that there are four older children in the family, and one of them has whooping cough. She explains to the mother that the baby probably has whooping cough too - though he is too young to make the "whooping" noise. She explains about immunization, and asks the mother to bring all her children to be immunized.

The trainees started the play. At first everyone watched and listened. Suddenly Dr. Pari spoke. "Excuse me - you forgot to count how fast the baby is breathing - would you go back and do that?"

Then Mrs. Atto, another teacher, said: "The mother is sitting too far from the health worker. Move her closer." One of the students shouted "You have not asked about the other three children;"

The actors became confused and made more mistakes. One of them began to laugh. They knew that their play was not a success. They lost interest, and sat down. Mrs. Nauno was embarrassed. She felt sorry for the actors.

Points to discuss

- a) Why was the role play not a success?
- b) How should the audience behave next time?

Comments for trainers

- a) The role play was not a success because people made comments in the middle. They did not wait for the play to end. All the comments were bad. The audience interrupted the play so much that the actors gave up. No-one learned from this exercise.
- b) Next time the audience must keep quiet until the actors have finished. Then they can comment - but they should say some good things first, before the bad things.

4. HOW TO PLAN A COURSE OR WORKSHOP

Who is to be trained?

This is to be decided by the planners and organizers of the immunization programme. They must choose the CATEGORIES of person to train (eg community nurses, vaccinators, etc) and the INDIVIDUALS.

How many to train in one course or workshop?

The best number of trainees for one course is between 6 and 20. It is not usually efficient to have less than 6; and to have more than 20 requires more space, equipment and trainers.

How many trainers do you need?

You need one trainer for 6 trainees. If there are 8-10 trainees, you need 2 trainers.

How long should a course or workshop take?

This depends on the previous education and work experience of the trainees. An average course would take at least one week. In some situations 10 days or 2 weeks might be necessary.

You could arrange refresher courses selecting only part of the material for 1 1/2 - 2 days.

You could have weekly or monthly "in service" training sessions in a health facility, using perhaps one module at a time.

What facilities and accommodation do you need?

You can use any suitable building - for example a school or church.

You need one room for each group of trainees.

You need a table for each group, and enough chairs for everybody.

There must be some arrangement for washing hands and cleaning equipment - but it need not be running water.

You must be near some health facilities, where trainees can go for field practice.

You must be near suitable sleeping and eating accommodation for trainees and trainers.

What does the course manager do?

Usually this is one of the trainers. He or she is responsible for overall coordination, administration, and contact with responsible officials (in Government, WHO Country and Regional Officers, etc). For a large course, you may need a full time manager, in addition to the trainers.

What is the trainer's role?

Trainers do not do much teaching in the ordinary sense of "lecturing". Instead, trainers must help trainees to use, read and understand the modules.

Trainers help to plan how long trainees spend studying each section.

They make sure that trainees find out what to do each day.

They organize the exercises, and make sure that trainees have the equipment that they need.

Trainers must demonstrate skills, lead discussions, correct, and comment on exercises, show slides, and films, answer questions, and arrange "fault finding" and "role play" exercises.

Trainers must know the material thoroughly in the way that it is presented. They must know their trainees capability, and the way in which the local programme is organized.

How do the trainees work?

There must be some sessions when they are all together - for example, opening and closing sessions, explanations, joint discussions, film and slide shows, some role play and drama sessions.

But for much of the time trainees work in small groups of 2-8, reading parts of the material, working on exercises, or going on field visits. The trainer plans what they do, allowing them, as far as possible, to work at their own speed.

How should you plan a course?

- Study the material yourself first. As you read a module, read also the section in Part 2 of the Trainer's Guide which has ideas for practical exercises for that module.
- Decide what is useful for your trainees, and decide what to include and what to leave out.
- Divide the material into sections for studying, and decide how long your trainees can spend on each part.
- For each topic plan a mixture of activities:
 - Let students study the text
 - Let them work on some of the exercises and case studies
 - Give a practical demonstration
 - Have discussion groups, and role play sessions.
- Do not have much formal lecturing - it is not the best way for trainees to learn about immunization.
- Allow plenty of time for discussion and to answer questions.
- When trainees answer questions individually in the text, talk to them individually about their answers. (You can go to their table, or they can come to yours). This individual feedback helps you to see how each trainee is doing, and where they have difficulty understanding the written material.
- Write down your plan, and fit it into the hours available during the day, perhaps something like the example below.
You do not have to stick rigidly to this plan; some parts may finish more quickly; others may take longer. But you need to know if you are getting a long way behind, so that you might not have enough time later on for role play, for example.

Example of a day's timetable - Module 1

- | | |
|---------------|---|
| 8.30 - 8.45 | Introduction |
| 8.45 - 9.45 | Slide show - "Recognize the disease".
(If blackout is a problem, move this to the end of the day) |
| 9.45 - 10.15 | Trainees read individually -
Sections 1.1, 1.2, 1.3, 1.4, 1.5, and 1.6. Answer Question 1. |
| 10.15 - 10.30 | Questions and discussion as a group. |
| 10.30 - 11.00 | Break. |
| 11.00 - 11.45 | Demonstration of thermometers in use locally, including new type being introduced in some areas.
Do Exercise 1 as a class, asking different trainees to measure the temperature of different places, |

- 11.45 - 12.15 Trainees study individually - Sections 1.7 and 1.8.
Allow 10 minutes for questions and discussion.
- 12.15 - 12.45 Demonstration of different vaccines, including comparing DPT
which has been frozen with vaccine which has not been frozen.
- 12.45 - 1.45 Break.
- 1.45 - 2.30 Trainees do Exercise 2.
They can refer back to text to look for answers.
Trainer circulates and corrects individually.
Discuss any problems as a group.
- 2.30 - 3.30 Trainees read Sections 1.9 and 1.10,
Do Exercise 3 using the drawing.
Read Sections 1.11, 1.12, answering Question 2 and Question 3.
Trainer circulates to give individual feedback.
Allow 15 minutes at the end for questions and discussion.
- 3.30 - 4.00 Break.
- 4.00 - 5.00 Class goes to another room to see a refrigerator. (some
mistakes have been made in loading it)
- two trainees demonstrate the parts of the refrigerator
- two trainees comment on how it is loaded.
- two other trainees reload refrigerator correctly.
- 5.00 - 5.30 Return to classroom.
Divide into two groups to answer the Case Studies.
One group discusses "Omar", and one group discusses "Lena".
Reconvene as a class to discuss both cases.

(Sections 1.13 and 1.14 not relevant at this stage - leave out).

What material and equipment do you need for a course?

ESSENTIAL:

Modules for each trainee
Blackboard and chalk
Paper for written work
Folders to keep permanent notes
Pens, pencils
Sterilizing equipment (see list below)
Injection equipment (see list below)
Vials of vaccine (if you have an adequate supply you can use good
vaccine. If you have supply problems, use out of date or empty
vials and ampoules.)
Vaccine carriers
Refrigerators of a type that is commonly used in the area. (If possible,
use a refrigerator that is in good working order. If a working
refrigerator is not available, use one that is not working, or a
cupboard. However, these substitutes are not as good).
Thermometers
Records and forms in use in your country.

IF POSSIBLE:

Flipcharts (to write on) and felt pens
"Prevention of neonatal tetanus" flipchart
Other posters and pictures
Slides and films
Projectors for slides and films

Sterilization equipment

Steam sterilizer, or boiling pan
Small container for needles
String (if you use round boiling pan, to lift forceps, to tie pan)
Stove
Kerosene or other fuel
Matches
Timer clock
Needle sharpening stone

Injection equipment

Must be sterilized:

Syringes - 5 ml; 0.5 ml (or 1.0 ml); "one dose" BCG.
Needles - mixing, intramuscular/subcutaneous, intradermal.
Forceps - 2 pairs
Small tray to put syringes down on, (2 if possible - one for
mixing syringes, one for injecting syringes)

Not sterilized:

Metal file to open ampoules
Insulated container ("Thermos") or plastic cup for ice to stand vaccines
in while you use them.
Silver foil to protect vaccines from sunlight
2 small dishes for swabs (one dry, one with spirit)
Cotton wool in container (to clean and press injection site)
Cotton cloth to hold ampoules

Cleaning equipment

Plastic bowl to soak used syringes and needles
Box or paper to collect rubbish
Bag to take rubbish away in
Hand-washing items: soap in plastic container, clean towel
Jug, bowl, or bucket for water

Kit bag

(see also Module 4, Section 4.2, where the equipment is listed)

PART 2.

Suggestions for practical exercises

These are some of the most important exercises in the teaching material - because they include all the "skills practice". They are described here and not in the modules because trainees cannot do these exercises by themselves. The trainer must organize them.

Module 1. Vaccines and how to look after them

Supplementary material

Review the six target diseases.

Show the slides "Recognize the Disease" from WHO or TALC. The value of reviewing the diseases is to emphasize:

- the mortality that they cause - many children die.
- the morbidity that they cause - many children become lame, mentally handicapped, deaf, malnourished, etc.
- the expense of treatment in hospitals and health centres.

Study the cold chain further

Show the slides about the cold chain from WHO or TALC.

Demonstration

Thermometers

Show trainees all the kinds of thermometer in use locally. Arrange for them to use the thermometers to measure some different temperatures - in a refrigerator, a room, in the sun etc. (See also Exercise 1).

Vaccines

Show trainees all the vaccines that you use in your programme. Show freeze dried vaccines and their diluents.

Put some DPT or TT vaccine into the freezing compartment of a refrigerator until it has frozen solid. Then thaw it.
Let students compare the "frozen and thawed" vaccine with some vaccine from the same manufacturer which was never frozen.

Skills practice

Use a refrigerator of the type which is used in the programme. Use vaccines or vaccine boxes, and plastic bottles of water.
Let trainees practise loading the refrigerator correctly.
They should also measure the temperature of the refrigerator.

(You can improvise, using a broken refrigerator or cupboard, but it is not nearly so good.)

Fault finding

Pack a refrigerator making some mistakes.
Ask trainees to list the mistakes.
Discuss what they have noticed.
Ask one or two trainees to repack the refrigerator correctly.

Module 2. Syringes, needles and sterilization

Demonstration and skills practice

Handling syringes

First demonstrate the correct way to handle sterile syringes. Then, let trainees themselves try. For each trainee supply a needle and a syringe in a covered sterile dish and forceps in a sterile container. Let trainees practise handling syringes step-by-step as the text describes. They may like to work in pairs and correct each other's sterile handling. Make sure that they wash their hands, and that all of them do the exercise.

Cleaning and sterilizing instruments

First demonstrate the complete procedure of cleaning and sterilizing instruments for immunization. Then let each trainee practise the procedures.

EITHER: practise doing the real job in a health centre;
(allow extra time to check each step of the process, and make sure that each trainee does everything correctly)

OR: collect all the necessary equipment in the classroom, and practise step-by-step there.

Make sure that you use the same equipment that will be available in the immunization programme.

Training workers to use the steam sterilizer

Special training is needed when steam sterilizers are introduced into a programme. It is strongly recommended that trainers conduct a one-to-one-and-a-half day training session to teach workers to use steam sterilizers.

Follow the procedure described in:

either the manual that comes with the sterilizer;

or, Sections 2.13 to 2.16 in Module 2.

(The descriptions are similar.)

Let trainees reread Sections 2.2, 2.11, and 2.13 of Module 2, which describe the principles of steam sterilization.

Give each trainee the following equipment to practise with:

- Steam sterilizer
- Plastic container
- Two 5ml syringes - two mixing needles
- 12 "one dose" BCG syringes - 12 intradermal needles
- 30 0.5 ml (or 1.0 ml) syringes - 30 im/sc needles
- 1 forceps
- 1 timer clock
- Water
- Stove, fuel, matches (1 stove for 2-3 trainees)

Demonstrate the procedure step-by-step.

Trainees should practice each step immediately after the trainer's demonstration, before the trainer goes on to the next step.

Loading the sterilizer

- Demonstrate all the parts of the steam sterilizer.
- Demonstrate the other equipment.
- Practise putting syringes and needles into the rack.
- Fill the sterilizer base with water up to the mark.
- Put the rack into the sterilizer base.
- Inspect the seal and safety valves of the sterilizer cover.
- Close the sterilizer. Practise opening and closing the sterilizer.

Heating the sterilizer and sterilizing.

- This must first be completely demonstrated by the trainer.
- Then each trainee should practise the complete procedure, and repeat it until he or she is confident and knows how to do it.

Opening the sterilizer and using the equipments.

- Practise picking up the syringes and needles from the rack.
- Practise correct use of the rack cover.

Trainers should also discuss any problems that can occur during steam sterilization, and the use of spare parts (such as safety valves, and lid seals).

Trainees should clean and dry the sterilizer after the practice.

Module 3. When and how to give vaccines

Testing knowledge

Ask trainees to write out the immunization schedule from memory. For each vaccine, trainees should know:

- the dose and how it may vary
- the course - how many doses and at what age
- important side effects and what to do.

Demonstration

If possible, do this in a health centre.

Demonstrate for each of the different vaccines:

- opening ampoules and vials
- reconstituting measles and BCG
- preparing vaccine for injection
- protection of vaccines from heat and sunlight
- positioning of the child
- giving vaccine to children and mothers - OPV and the various injections.

Skills practice

Let EACH trainee practise ALL these skills step-by-step.

Use the real thing and do the real action whenever possible, for example, hand washing. "Pretending" is not so good.

However, you may not be able to use real vaccines and real children during early stages of learning skills.

To prepare for demonstration and practice

Make sure that you have all the necessary equipment listed in Part 1 of this Trainer's Guide, and in Module 4.

Find the type of instruments that are used in the local programme.

If trainees sterilized some instruments in the sterilization exercise (Module 2), they can use these instruments to practice vaccine handling.

You need:

- Enough equipment for each trainee to practise the skills - that means one set of items for each 2-3 trainees.
- An ice pack, or a cup with ice, (or substitutes such as pieces of chalk), to stand vaccines on; and some silver foil.
- All kinds of vaccine. Expired vaccines are especially valuable for this purpose. Trainees may be able to practise some things with used vaccine vials. Otherwise you must use "in date" vaccines, unless your programme has a serious supply problem. Of course, always use the oldest vaccines available.

What trainees should practise

Vaccine handling

Opening vials and ampoules; reconstituting vaccines; filling and measuring correctly with all types of syringe; keeping vaccines on ice and covering them with foil.

Injecting into potatoes

This is especially useful for intradermal injections - the potato skin is suitable for this. If possible, boil the potatoes for a few minutes to soften the skin.

Holding a doll

To learn the correct position for injecting. You can make a suitable doll out of old cloth or even paper, filled with straw or waste paper. Each trainee should go step-by-step through the whole process of preparing and "giving" the doll each vaccine.

Clinic visit

Visit an immunization session.
Practise opening vials and ampoules for the session.
Practise holding real babies correctly.
See real immunizations given.

When trainees are advanced enough:

Practise preparing and injecting real vaccines into children under supervision.

Module 4. Preparing for an immunization session

Demonstration and skills practice

- Demonstrate packing a vaccine carrier with ice and vaccines.
- Let each trainee practise packing a vaccine carrier.
- Let them work in pairs, each commenting on their partner's performance step-by-step.

Prepare the following equipment:

- Vaccine carriers of the type that are used in the local programme
- Empty ice packs, and plastic bags with pieces of foam or stones for "ice".
- Empty vaccine boxes to use for vaccines
- Newspaper, card, or foam rubber to wrap the vaccines.

Practical experiment

Obtain two or three similar vaccine carriers, and put a frozen ice pack or ice cubes, and if possible a thermometer, in each of them.

Leave one carrier closed, standing in the shade; leave one closed and in the sun, and leave one with the lid open in the the shade.

Let trainees observe what happens to the ice and to the temperature in the carriers.

Start this exercise early in the day, and continue to the next day if necessary, to see how long the ice stays frozen, and how long the temperature in each carrier stays below 8°C.

Role play or drama

Ask trainees to act preparing for an immunization session, starting their journey, and then having a breakdown or other delay.

Some trainees can be people waiting at the immunization site.

Module 5. How to conduct an outreach immunization session

Skills practice

Let students go through the separate tasks and stations to practise them one by one, following step-by-step from the module.

Planning practice

- Ask trainees to draw a map of their own immunization site. Discuss in class the good and bad things about each arrangement.
- Ask one group of trainees to draw maps of badly arranged sites. Ask another group to draw maps of well arranged sites. Let the groups exchange maps for discussion.

Fault finding

Arrange the equipment for an immunization station with as many faults as possible. Use empty vials and ampoules to represent vaccines.

For example, put sterile needles on the table top; BCG vaccine out in the sun; polio vaccine out of the ice; DPT vaccine wrapped in ice; vaccine carrier open, etc.

Have some things missing, eg forceps. (It is difficult to spot things that are NOT there).

Ask trainees to write down all the mistakes that they can see. Then, working as a class, make a combined list, and discuss it. Then ask one or two trainees to arrange the equipment correctly.

Role play

Role play an entire immunization session. This may be the best part of the course. It brings out many useful points, and brings together all the separate things that trainees have learned.

Plan it towards the end of the course. It takes 2-3 hours, so leave plenty of time.

How to role play an immunization session

- Make sure that all the necessary equipment is available in good time.
You need:
 - dolls
 - complete immunization kit
 - vaccine carrier
 - icepacks and ice
 - samples of all vaccines and diluent
 - records and forms
 - teaching aids
 - discussion plan (from the Exercise in Section 6.7)
 - furniture
 - weighing scales.

- Choose a suitable site, for example under a large shady tree.

- The day before the role play takes place, explain to the group the whole procedure.

- Ask two or three trainees to volunteer to organize and "act" the health workers for the immunization session.
One of them should be a good leader. They should be people who are actively involved in immunization, and they should not be too shy. Other trainees must act the mothers, and they also observe everything, so that they can discuss and comment afterwards.
Ask one of the organizers the day before to prepare a group discussion for a health education session and to find appropriate visual aids.

- The organizers should prepare the site, arrange the stations, and perform the whole immunization session, with, for example, one of them at the screening station, one at the immunization session, and one at the exit.
One health worker does the group health education at the beginning of the session. It is good to have at least one other MCH activity - for example, weighing and recording the child's growth, or treatment. The audience should stay quiet during the play. But ask them to write down their comments while they watch, so that they do not forget them.

- After the role play have a general discussion. Let people comment on the good things first, and then on the bad things.
If the organizers did some technical tasks incorrectly, let them or other trainees do them again correctly.

- The trainer should summarize the performance of the role play, and remind people what they have learned.

Module 6. Health education in an immunization programme

Projects

Ask the community

Arrange for trainees to visit a few local residents or some families in a village to discuss immunization with them.

The trainer must visit the community leaders beforehand, to explain what the trainees will do, and to ask the people to help.

Trainees should think, before they go, about the kinds of questions they will ask, and what they want to learn about. But they should also be ready to listen, and to let the people whom they visit talk about what they want to.

This is not a survey: it is an exercise to help trainees learn how to ask people about a programme.

Trainees can ask:

- Do children in the community suffer from the target diseases?
- How do the parents feel about that?

If there is an immunization programme in the area:

- How well does it work?
- How could it be improved?
- Have your children been immunized?
- What made the family decide to have, or not to have, their children immunized?

If there is no programme:

- Would people like one? Why? or Why not?

Ask mothers at the clinic

Arrange for trainees to talk to some mothers as they leave an immunization session. They should ask each mother what has been done for her child, and what advice she received. Trainees may learn a lot about how much mothers remember of what they are told, and about how clearly health workers explain things.

If mothers ask for more information, the trainer must make sure that what trainees say is correct.

Group discussion

Divide trainees into groups of 4-5.

Ask them to discuss in detail, either for the area where they work, and in their experience; or for the area that they visited in the Project exercise:

- How to encourage people in the community to have their children immunized.
- How to make it easier for people to attend immunization sessions.

Role play

Individual health education

Ask trainees to "role play" health workers, giving personal advice about immunization to mothers.

"Mothers" should think of all the things that a real mother might be confused about.

"Health workers" should patiently try to make their explanation clearer and easier to remember. Make sure that they do not use long medical words, or unsuitable ordinary words.

After the role play, comment on and discuss the performance.

Group health education

Ask trainees to prepare a 5 minute group health education talk.

They can use items from the list that they made in the Exercise PLANNING GROUP DISCUSSIONS, (Section 6.7 in Module 6).

They should use a visual aid.

Give the trainees one to two days to prepare.

Each trainee gives their talk to the others, who act as mothers.

Afterwards, comment on and discuss the talk.

Drama

Give trainees a problem to act out - for example "the cause of tetanus".

Let them work out a situation to illustrate the idea - for example, a baby is delivered by a TBA; she cuts the cord with a dirty knife and puts on dung or a local medicine.

Give trainees parts to act in the drama, and give them a few days to prepare themselves, their clothes and their equipment.

Let them rehearse the drama in the classroom, and then act it at an immunization session, or at a village meeting.

Allow time to complete the drama and do not interrupt.

After the performance, comment on it, and discuss it. Give good comments first, before the critical ones.

Module 8. Preventing neonatal tetanus.

Practical exercise

Prepare a delivery packet.

Trainees should try to collect the things that they need from their own possessions - or perhaps from their family. It may help if they can work in pairs.

They should wash the things, boil the strings, dry them on a fence in the sun and wrap the packet up.

Project

Arrange for trainees to visit a health centre or outpatient department to talk to women about tetanus.

They should ask women if they know about the disease and if they have had TT immunizations.

Trainees should report back to the group about their findings.

Role play

Ask trainees to role play a trained TBA doing a delivery in a woman's home. They should include the TBA helping the mother to prepare a delivery packet, the labor and the delivery itself, and talking to the family afterwards. They should have a doll of some sort for a baby, and a model umbilical cord which they can really cut and dress. They may want to do it all correctly, or they may want to include mistakes and problems. Discuss the play afterwards.

Drama

Prepare a drama or puppet show for health education for the public.

This should preferably be for somewhere NOT in a health facility, because women who attend health facilities may not be the ones at greatest risk of tetanus. The market place may be the most appropriate place for this drama.

Act the drama in front of other trainees first. If it goes well, trainees may like to act it in a real market.

PART 3.

Answers and comments on exercises in modules 1-8

Module 1. Vaccines and how to look after them

Question 1

The thermometers in Fig.1-3 both show a temperature of about +5°C. That is between 0°C and +8°C, so it is a safe temperature to store vaccines.

Exercise 2 - Multiple Choice Questions

1.C	2.E	3.B	4.A	5.E
6.D	7.D	8.A	9.C	10.B

Question 2

Oral polio vaccine and measles vaccine are on the top shelf. This is near the freezer, which is the coolest part of the main compartment.

BCG, DPT and TT vaccines are on the middle shelf, away from the freezer. DPT and TT must be stored away from the freezer, to make sure that they do not freeze.

Question 3

- a) The line at the top of the SAFE TEMPERATURE RANGE is the line for +8°C; the line at the bottom of the SAFE TEMPERATURE RANGE is the line for 0°C. Vaccines must be stored between these two temperatures.
- b) The temperatures on the morning of day 3, and the evening of day 5 are within the safe range.
The temperature on the morning of day 8 is too low.
The temperature on the evening of day 12 is too high.

Case Study - Omar the vaccinator

- a) Omar should not immunize children with DPT vaccine that has been frozen. It has lost its potency, and cannot make the children immune. Melting the vaccine in hot water does NOT make it potent again.
- b) Omar should throw away the frozen vials. He should check all the DPT vaccine in his refrigerator, to see if any of it is in good condition. If he has some good vaccine, he should use that. Omar should check the temperature in his refrigerator every day. Probably, it is too cold, and he should adjust the thermostat. He should make sure that the DPT vaccine is not near the freezing element.
- c) Omar should try to get the children whom he has vaccinated with the frozen vaccine back, to immunize them again.

Case Study - Lena and her son Regi

- a) The oral polio vaccine that Regi had must have lost its potency. Probably somewhere along the cold chain it became warm. Polio vaccine is damaged very quickly by heat.
- b) Everybody who takes care of vaccines must take great care to keep them cold all the time. We must not immunize a child with a vaccine that has lost its potency.

Module 2. Syringes, needles, and sterilization

Question 1

If you use unsterile syringes and needles, you inject microorganisms into the person.

- you may cause an injection site abscess;
- you may cause septicemia;
- you may give the person tetanus;
- you may carry hepatitis (jaundice) from one person to another;
- you may carry the AIDS virus from one person to another.

Question 2

If you touch the shaft or bevel of a needle you must:

- put it into your container for used instruments
- sterilize the needle again before you use it.

Case Study - Nurse Libby's screening day

- a) The tender swellings in the children's thighs are abscesses. They probably occurred because the vaccinator used an unsterile needle to give the DPT. This could happen because:

- The needles had not been boiled for 20 minutes;
- The fingers of the vaccinator had touched the needles;
- The syringe had been put down on the table top;

Possibly the injections were not deep enough.

- b) The mothers of the children with abscesses were not happy about the DPT immunization. They warned other mothers not to take their children for immunization.

- c) If a child comes to your health centre with a swelling in the thigh, treat the swelling with warm compresses, and give an antibiotic if you have one. If the swelling does not resolve in a few days, refer the patient to a more senior health worker, who can decide if incision and drainage are necessary.

Give the child very special care afterwards.

See the child quickly, and dress the wound carefully.

Take more care to keep instruments sterile in future, and to give DPT injections deep enough.

Exercise - The time and place for sterilization

If you have enough syringes and needles:

There is the same amount of work to do whatever order you do the tasks in. So you need the same amount of staff.

Cleaning and sterilizing AFTER the immunization session does not necessarily make the working day longer.

If you have to sterilize during the immunization session:

This DOES make the session take longer.

Health workers who sterilize DURING the session often try to hurry, and they do not boil their instruments for 20 minutes.

Sometimes they sterilize for only 2-3 minutes.

Question 3

If you do not clean the instruments before you sterilize them, the heat may not make them sterile.

Some micro-organisms may remain.

Needles are more likely to become blocked.

Question 4

If you give BCG too deeply, because the needle is barbed, there is more likely to be a severe reaction to the vaccine.

Question 5

5 minutes plus 15 minutes makes 20 minutes, which is the time required to guarantee sterility.

The 20 minutes is divided into 5 and 15 minutes, because you have to turn the burner down after 5 minutes. Turning the burner down saves fuel.

Case Study - No steam

Araba had forgotten to put any water into the sterilizer when she loaded it. If there is no water, or not enough water, the sterilizer becomes too hot, which can damage syringes.

Case Study - The charcoal grill

- a) Pat had made the fire too big. It was good that she had a grill made, but a grill cannot protect a sterilizer from a fire that is too big.
- b) Next time Pat uses a steam sterilizer, she must make a smaller fire. Flames must not come up around the sides of the sterilizer.

Case Study - Kwame and the seal

- a) Kwame found that the seal of the sterilizer was very loose, and it was coming off.
- b) Kwame must change the seal. he must check the seal every time before he closes the sterilizer.

Question 6

Leave the needle container open during boiling, so that the boiling water can reach the needles.

If you put the cover of the needle container on, water cannot reach the needles, and they will not be boiled.

However, you must boil the cover with the instruments.

After you take the needle container out of the boiling pan, put its cover on to prevent contamination. A cover which has not been boiled contaminates the needles.

Question 7

You must put the forceps on top so that you can pick them up without touching anything else. If the forceps are not on top, you will touch the other instruments when you take out the forceps, and you will contaminate everything in the container.

Case Study - The new timer clocks

- a) The instruments were not sterilized because they had not boiled for 20 minutes.
- b) Nurse Lamya set the timer clock before the water boiled.
- c) Sister Mita showed Lamya that she should wait for the water to boil strongly before she sets the timer clock.

Question 8

There must be 2 cm of water above the instruments, because some water boils away. There must be enough water so that the instruments are covered completely for the whole 20 minutes. If the instruments are not covered completely all the time they will not be sterilized.

Question 9

It is important to let the instruments cool before you use them because, if you take vaccine into a hot syringe, you may damage the vaccine, so that it does not immunize the child. (You may burn your fingers too.)

Question 10

You must keep covers on the boiling pan and needle container to prevent the instruments becoming contaminated.

Micro-organisms from the air collect on uncovered instruments.

Question 11

You must not put a syringe that you are using back into the pan, because it will contaminate all the other instruments in the container. If you have touched a syringe, there are micro-organisms on the parts that you have touched.

Case Study - Nurse Siti and the syringes

- a) - Nurse Siti was using one syringe and needle for two injections. That is very dangerous. You must always use a newly sterilized syringe and needle for every injection.
- She was putting the syringes in and out of boiling water, so there was a risk of breaking them, because they were made of glass.
 - She was not timing how long the syringes and needles boiled for. It was not 20 minutes - possibly 2 minutes.
 - She put the used needle and syringe into the water before she took out the other one - she might take the used one out again by mistake.
 - She filled the syringe with vaccine immediately after she took the syringe out of the boiling water. She did not allow the syringe to cool.
- b) The syringes and needles were never sterilized. Nurse Siti may give the children injection site abscesses, septicemia, tetanus, hepatitis, or AIDS.
- The syringe was hot when she filled it, which may damage the vaccine, (especially measles vaccine), so that it does not immunize the child.
- c) It is very difficult to immunize so many children safely with so few syringes and needles. Mr. Suntik must arrange for Nurse Siti to have a better supply.

Case Study - Marli and the kerosene

- a) Marli did not have a spare bottle of kerosene. She did not check the kerosene in the stove the day before the outreach session.
- b) Marli could have taken the steam sterilizer to the outreach site, and she could have borrowed a stove locally.
- c) Marli should keep enough spare kerosene to do all her sterilizing for at least one session. She should refill her bottle of kerosene as soon as she uses it.
She should check that she has kerosene the day before an early start. Perhaps she should change her routine and sterilize the instruments on the day before if she is going to make an early start.

Module 3. When and how to give vaccines

Case Study - The keen MO of Munga

- a) The most common problem was failure to immunize sick children. The nurses could have immunized all of these children, so their measles could have been prevented.

For the four children who had been immunized, the problem was probably with the cold chain at their health centre.

Their measles could have been prevented by better vaccine care.

- b) The MO should discuss with senior health staff the present policy about immunizing sick children. He should talk to both Public Health Nurses and Paediatricians. With their agreement and help, he might arrange refresher courses for the staff who immunize children. One of the main topics to discuss should be "Contraindications to immunization".

The MO should also arrange to check how the cold chain works in the health centre where the 4 children who had been given vaccine went.

Case Study - The efficient vaccinators of Nali

- a) Some of the children in Nali had side effects from the first dose of DPT. The vaccinators did not take time to warn the mothers that some children might be fussy or have a fever, and they did not explain what to do. The mothers were upset, and they were afraid to go back for any more immunizations.
- b) The vaccinators should spend more time talking to mothers, and explaining about vaccines. If mothers understand that a side effect may occur, but that it is not serious, they may not be so upset. The vaccinators can complete their records and clean up later in the day.

Case Study - The unlabeled vaccines

- a) Nurse Santina's mistake was to inject something into a child from a vial without a label.
- b) To be sure that you never make this mistake, make a rule that you never give any medicine or vaccine from a vial or bottle that has no label. Even if you feel certain about what is in the vial, do not give it if there is no label.

If your refrigerator is wet, keep your vaccines in a plastic bag until the refrigerator is mended. Then the labels should not come off.

Question 1

You must make sure that the mother holds the child securely and in the correct position because the child may kick and try to push you away. If the child moves too much the needle may break off in his leg or arm. Then he may need a surgical operation to remove it.
Or, you may spill the vaccine, or contaminate the needle, or inject wrongly.

Question 2

It is important to stand polio vaccine in a cup of ice because it is damaged by heat very quickly - more quickly than other vaccines.

Question 3

You must keep diluent cold, because if you reconstitute with warm diluent, you damage the vaccines.

Question 4

You must look after reconstituted vaccines very carefully because:

- they lose their potency very quickly.
- reconstituted measles vaccine is quickly damaged by heat.
- reconstituted BCG is quickly destroyed by sunlight, (in about 5 - 10 minutes).
- reconstituted BCG quickly becomes contaminated with bacteria.

Case Study - The window ledge

- a) Ramesh must not reconstitute the vaccine with the diluent from the window ledge while it is warm. Warm diluent damages vaccines.
- b) Ramesh must put the diluent back into the refrigerator, and leave it until it is cold. When it is cold again, he can use it.

He should explain what has happened, and ask the mothers to wait for an hour, or bring the children back for measles immunization in the afternoon, or on another day.

Question 5

To give an intradermal injection, you have to press harder on the plunger than for other injections, because the vaccine must separate the layers of the skin. The pressure can push the syringe out of the needle; or it can make the vaccine leak out at the adaptor. To prevent separation or leakage, you must fix the needle very firmly onto the adaptor of the syringe.

Question 6

The bevel of the syringe must face upwards for an intradermal injection, because this makes it easier to inject into the skin, and not under the skin.

Module 4. Preparing for an immunization session.

Calculating how many children you should immunize.

- Find the population served by one health centre or outreach station.
- Calculate the number of babies born into that population in one year. If you do not know the exact figure, assume that it is 3 babies per hundred of the population, (3%).
- You want to immunize all the babies, so 3% of the population is your YEARLY TARGET for each immunization.
- Each child has to make 4 visits to complete his immunizations.

For a population of 1,000, the yearly target for each immunization will be 30 children.

Each child makes 4 visits, so the yearly target of VISITS will be
 $30 \times 4 = 120$ visits.

There are 12 months in the year, so the monthly target for visits
is $120/12 = 10$ visits.

Putting all the calculations together, the monthly target for visits is:

$$\frac{\text{POPULATION} \times 3 \times 4}{100 \times 12}$$

So MONTHLY VISITS = POPULATION/100

(The 3,4 and 12 cancel each other out)

If your birth rate is different from 3%, you will have to work out your monthly target slightly differently.

Question 1

The monthly target of visits for a population of 4,000 is 40.
If there are 2 sessions each month, you would expect to immunize 20 children at each session.

Question 2

The monthly target of visits for a population of 2,500 is 25.
You need hold only one session a month at this outreach station.

Question 3

- a) Take 3 x 5 ml syringes, and 3 mixing needles
30 (20 + 10) 0.5ml (or 1 or 2 ml) syringes
30 (20 + 10) im/sc needles
10 "One dose" BCG syringes and 10 id needles.
- b) Take 3 x 5ml syringes, and 3 mixing needles
42 (30 + 12) 0.5 ml (or 1 or 2 ml) syringes
42 (30 + 12) im/sc needles
10 "one dose" BCG syringes and 10 id needles
- c) same answer as a)
- d) Take 3 x 5ml syringes and 3 mixing needles
70 (50 + 20) 0.5 ml (or 1 or 2 ml) syringes
70 (50 + 20) im/sc needles
15 "one dose" BCG syringes and 15 id needles.
- e) Take 3 x 5ml syringes and 3 mixing needles
15 (10 + 5) 0.5 ml (or 1 or 2 ml) syringes
15 (10 + 5) im/sc needles
5 "one dose" BCG syringes and 5 id needles.

Case Study - Liza and the ice packs

- a) Liza did not put ice packs and water to make ice cubes into her freezer early enough. She put them in only the day before the session. They were not frozen completely by Thursday, so they melted too quickly.
- b) Liza must cancel the immunization session, and throw all the vaccines in her carrier away. She must explain and apologize to the people, and promise to come on another day.
- c) Next time, Liza must put water for ice cubes into the freezer on Tuesday, when she takes the frozen cubes out. She must put the ice packs back into the freezer on Tuesday afternoon when she returns from the session. She must not leave this task until the Wednesday afternoon.

Question 4

It is important to put ice between the vaccines and the lid, because heat enters the carrier most easily through the lid.

Case Study - Mr. Tonic and the labels.

- a) Mr. Tonic did not put the ice or the vaccines into a plastic bag - he put them all straight into the carrier.
- b) Mr. Tonic should not immunize the mothers or the children with the unlabeled vaccines. He must throw them away. If he thinks that he has time, he should cycle back to his health centre to collect new vaccines. But first he must tell the waiting mothers the truth and ask them if they are able to come back in two hours time. If it is not possible for him to collect new vaccine, he should apologize to the mothers, and try to return as soon as possible on another day. He should inform the people of the day and the time when he will return.
- c) In future Mr. Tonic should put the ice cubes in a plastic bag and close it tightly before he puts it into the carrier. He can also put the vaccines into a plastic bag, for extra protection.

Question 5

To keep cold the vaccines that you are using:

- put some of your ice cubes into a cup or insulated pot;
- stand the vaccine vial in the cup of ice;
- keep the cup of ice in the shade.

If you do not have any ice cubes:

- wrap the measles and BCG vaccines in foil;
- stand all the vaccines on an ice pack, in the shade.

To keep cold the unopened vaccines, that you are not ready to use:

- leave them in the vaccine carrier;
- leave the lid on tightly until you need a new vial of vaccine
- leave the vaccine carrier in the shade.

If you are working in a health centre with a refrigerator:

- leave the unopened vaccine in the refrigerator;
- put the "open" vaccines in an insulated pot or cup of ice on the table.

Case Study - Pak Manan the clever mechanic

- a) Bagio cancelled the immunization session because Pak Manan's vaccines were warm and probably useless; and because the instruments were contaminated.
- b) Pak Manan should clean and sterilize his equipment, and pack it correctly. If the car breaks down, it is very good if Pak Manan can mend it. But he must put the vaccine carrier in the shade, (where his friend slept), and leave the carrier lid tightly on. He must drink his "Fanta" warm.

Case Study - Nurse Marta's accident

- a) Nurse Marta did not tell the people what had happened - she just went home. So they waited and waited.
- b) Of course Nurse Marta could not help the accident, but she should have told the people of Masu about it. She was not hurt, so she could have gone to the village herself to explain. The people would have been kind when they saw her dirty clothes and equipment. If she could not go herself, she should have sent a message as quickly as possible. She should tell the people that she will come next time. If possible she should visit them a few days before the next session to ask them to be ready for her.

Module 5. How to conduct an outreach immunization session

Case Study - The clerks and the tables

- a) The nurses had to work in the darkest part of the room, and they had no table or chairs. The clerks had all the furniture, and all the light from the door, but they did the least work. The queueing mothers could not sit down.
- b) The supervisor tried to suggest that they arrange the room better. The clerks could perhaps share one table, and the nurses the other table. They should try to find more chairs or a bench for the mothers to sit on.

There is not enough work for 2 full time clerks in an immunization session. Perhaps the clerks could help more with other tasks.

Question 1

You must arrange stations along a path so that:

- the tasks are done in the right order;
- the mothers move or flow from station to station without going back, bumping into each other, missing something out, or becoming confused.

Exercise - Ander Health Centre

- a) The nurses immunize the children and women near the Exit door. The table with immunization equipment is across the other side of the room, near the sterilizer stove. The vaccine carrier with the vaccines in it is on a stool in the middle of the room.

For each immunization, the nurse had to walk to the mother to arrange the child; then back to the instrument table for a syringe; across to the vaccine carrier to load the syringe; then back to the table for a swab of cotton wool; then back to the mother to give the vaccine; then back to the table with the dirty syringe. The nurses were very tired at the end of the morning, but they had only immunized 20 children between them.

- b) You might try to put the vaccines and the syringes and other equipment closer together, and closer to where mothers sit while their children are being immunized.
- c) You might think of a better way to arrange the other stations, for example, the community nurse who screens could also give treatment. It is not clear where health education is done at Ander.

Case Study - Nurse Jose and the date stamp

- a) The children did not get the vaccine because the health workers did not arrange the flow of mothers and the waiting areas well, so both mothers and health workers became confused. Also, Nurse Jose stamped the date BEFORE Mr. Cato gave the vaccine. There was no way to check if he gave the vaccine or not.
- b) Sister Jose and Mr. Cato must arrange the waiting areas and flow of mothers better. If there is no waiting space inside the building, they must find a space outside. Mr. Cato must have the date stamp, and only stamp the date on the growth chart AFTER he gives the vaccine.

Case Study - Hassan's wasted vaccines

- a) Hassan used a lot of vaccine because he opened them before the people came. His sessions were small, and sometimes there were no children who needed one or other of the vaccines. Often, Hassan threw away vials which he had opened but not used. He was working carefully but wastefully.
- b) The supervisor asked Hassan not to open or reconstitute any vaccines until a child came who needed that vaccine. He should leave the vaccines in the vaccine carrier until a child came who needed them. However, if a child does come, Hassan should open a vial of vaccine, even for only one child.

Question 2

You must record the immunizations so that you know what you have done. You must report them because your supervisor needs to know. He or she must count up from the records of all the health workers in the area how many children they have immunized. Then he or she can evaluate the success of the programme, and plan the supplies and help that you all need. Also, you can evaluate your own work. Module 7 explains how. You can use your results for health education. Tell the people about the success of their programme. If your programme is not successful, you must find out why.

Exercise - Tally sheet from Kopang

The immunizations on Novemebr 16 1986 were as follows:

	Less than 1 year	1 year and older
BCG	7	2
OPV 0	7	0
OPV 1	12	0
OPV 2	10	0
OPV 3	7	1
DPT 1	10	0
DPT 2	10	0
DPT 3	8	1
MEASLES	11	3
TT 1	0	6
TT 2	0	8

Case Study - Kazi the friendly vaccinator

11 things that Kazi did wrong:

- He smoked while he was working, and some ash fell onto the sterile needles.
- He put his immunization table in a sunny place, (though it was kind to let the women sit in the shade)
- He took out 2 vials each of measles vaccine, OPV and DPT. (he should only take out one)
- He reconstituted 2 vials of measles and BCG vaccine at the same time.
- He shook the vaccines to mix vaccine and diluent.
- He did not put the vaccines onto ice.
- He picked things up with his fingers instead of with forceps. (He should have had 2 pairs of forceps).
- He touched the adaptor of the syringe.
- He put the loaded syringe into the vaccine carrier.
- He left the vaccine carrier lid partly open.
- He used the same measles syringe and subcutaneous needle for four children.

Module 6. Health education in an immunization session

Case Study - Hard working Doctor Jan

- a) The people were not ready because Doctor Jan did not MOTIVATE them. He told the headman about the programme, and said when he would come for the first session, but he did not discuss the programme with the community.
- b) Doctor Jan should go more slowly. He should spend more time visiting people, talking, listening to their problems, and making friends, before he explains about immunization. Then he should ask if the people want a programme, and if someone from the community could be trained.

Case Study - Tea for the headman

- a) Very few children came to the child health visits at Tonota, because the community leaders were not interested. Nurse Pearl and Mr. Felo had not talked to them enough about it.
- b) Inviting the headman to the health centre, and making him feel welcome, made him interested in the immunization programme. He then influenced other families.

Case Study - Crossing the Road

- a) Mothers in this town did not "like" immunizations, because they do not know about them. No-one had explained about immunizations properly.
- b) The health workers did not make friends with the local people; they had not got to know them, and they had not discussed the programme with the community. The health workers were not good at their community relations.
- c) Kodo advised Hango to spend some time each week visiting people in the community. Hango should visit community leaders, but also ordinary families. Hango should find out what people really think about vaccines, the immunization programme, and why people do not come to his sessions. He may discover how to make his programme more successful.

Case Study - The health centre that was too far

- a) The real reason that people did not come to the clinic was that it was not a pleasant experience. They could not sit down, and the community nurse did not show any interest, or ask them how they were. Sometimes she was rude.
- b) After Kassim's visit, the nurse began to be more polite. Coming to the clinic became a pleasant experience, and people liked to come. Then they did not find it too far to walk.

Case Study - Sister Lim and the perfect contact person

- a) The sessions were a success because Sister Lim asked the village for help. She waited until they were motivated, and they wanted the programme.
- b) You cannot find a good contact person by yourself. The people of the community must choose one for you.

Case Study - Sister Ko and the traditional healer

- a) Mama Nan is important because the community nurse cannot work without her. A traditional healer may have great influence in a community. If they work against you, your programme may fail. You should work with healers. Show them respect, and show them what you do. It will make your own work more pleasant too.
- b) Mama Nan can explain to the community nurse about what people think and do about the target diseases; what they feel about immunization; and how many children have died. She may be able to advise about problems that arise with the programme, and how to overcome them.

Exercise - What to discuss with mothers about immunization

The essential points to explain to a mother each time you immunize her child are:

1. Which vaccines her child has had today.
2. Any side effects to expect from this vaccine. Explain what she herself can do about any side effect, and encourage her not to worry about it.
3. When to come again. Show her where the date for her next attendance is written on her card, so that she can check, or she can ask someone to read it for her.
4. Explain WHY a child needs to have more than one dose of some vaccines. If she misses an appointment for some reason, she should come as soon as possible after that.
5. She can come for her next appointment even if the child is sick.
6. To keep her card carefully and to bring it next time. Encourage and congratulate mothers who do bring their cards, but do not be angry if a mother does not bring her card. Do not make mothers afraid to come without their child's card.

These are the points that you should make sure that you discuss with EVERY mother. There may be other points to discuss with an individual mother, to answer her question, or because of her particular child's situation.

Case Study - Quiet Nurse Mary

- a) There is no communication between Nurse Mary and the mothers. She does not talk to the mothers.
- b) Sister Emma asked Nurse Mary to try to talk to the mothers more. Nurse Mary can give health education when the mothers have arrived before she starts to give any vaccine. She can talk to any mothers who come early. She can be friendly and show interest while she is waiting for other mothers to come. She can explain what she is doing while she gives the BCG. She can talk to each mother after the immunization, and explain when she should come again.

Exercise - Planning group discussion

Here are some ideas that trainees might consider. They are not "right" answers. Your ideas will probably be more appropriate for your programme.

1. The target diseases are dangerous. Medicines often do not help.
2. Vaccines PREVENT diseases - explain the idea of prevention.
3. You need to give vaccines at the right time - BEFORE children become ill.
4. There are 11 immunizations - 2 for the woman, 9 for each child. You need to have them all. (Women should also have 3 more immunizations later on).
5. A child needs 3 doses of DPT for good protection.
6. A child should have 4 doses of polio vaccine for good protection.
7. Some vaccines have mild side effects - do not be afraid of these. Often it shows that the vaccine is working.
8. It is quite safe to immunize a child who is sick or underweight.
9. Keep your growth chart or immunization card safely - always take it with you when you take the child to see a health worker.
10. A mother is immunized against tetanus, to protect her baby - it also protects the mother.

Module 7. How to evaluate your own immunization programme.

Exercise - Reading a Monitor Chart

1. Monthly target population is 200.
2. About 1400 children.
3. 800 children.
4. Between 50% and 75% - about 60%.
5. DPT 2: - 1400; 560; about 40% (less than 50%)
DPT 3: - 1400; 450; between 25% and 50% - about 30%.
6. DPT 1: - 800; 550; almost 75%
DPT 2: - 800; 310; between 25% and 50% - about 40%.
DPT 3: - 800; 280; between 25% and 50% - about 35%.

Case Study - Mr Kabu and the tetanus toxoid

- a) Mr. Kabu did not ask anybody what was wrong. He just told the other mothers to tell the antenatal patients to come. He only found out because Mrs. Mena talked in the market.
- b) If you think that there is a problem, ask people. Go and visit people in the community. Try to find out what the problem is, and put it right.

Case Study - The helpful midwife

This story reminds us that we work in a team. Even health workers that you do not meet are part of the team, and they can help your work. Hospital midwives may not do the immunizing themselves, but they can help to educate and motivate mothers. It is important to talk to other health workers, to explain what you are trying to do, and how they can help.

The story also shows that it is helpful to ask why people DO come, as well as why they do NOT come.

Module 8. Preventing neonatal tetanus.

Case study - Two months pregnant

- a) The nurses in the Town Health Centre were following the correct procedure. It is quite safe to immunize women at one or two months, or at any stage of pregnancy.
It is important to take every chance to immunize a woman - in case she does not come back again.
- b) Nurse Celia should tell her supervisor what Mrs. Kama told her, and she should ask him if he knows about the practices in the Town Health Centre. If it is not too delicate a problem, she can try to find out from the supervisor what the government policy is. Hopefully, the supervisor will contact his colleagues in the Ministry of Health and sort the matter out.

Case study - Sophy's early pregnancy check

- a) Sophy came to the antenatal clinic to confirm the pregnancy, so that she could have an abortion before it was too late.
Women sometimes come to antenatal clinic very early for this reason.
- b) The midwife should have given Sophy a dose of TT, even at such an early visit. It might have prevented the tetanus.
Of course, one dose of TT by itself would not give any protection. But if Sophy had had TT or DPT at any time in the past, then the response to this dose might have been enough to protect her.
- c) The story of Sophy reminds us that women also may get tetanus. They may get tetanus from any wound, but tetanus is a special risk after childbirth or abortion, particularly after induced abortion.
We must immunize women to protect them as well as their babies. We should take any opportunity to immunize them.

You might also want to ask what family planning advice Sophy had been offered - though the story suggests that she had lived somewhere remote until recently.

Case study - Baby Anna has a cold

- a) The nurse gave Anna's mother good advice about Anna's cough.
- b) The nurse forgot to ask Anna's mother about the immunization status of either herself or her baby.
Baby Anna was only weighed once before, so she has probably not completed her immunizations.
The nurse should ask Anna's mother if she has had her TT injections.
- c) The nurse should give baby Anna whatever immunizations she may be due for (probably DPT and OPV).
She should give Anna's mother TT.

Case study - The Family Planning Medicine

- a) Nurse Usha was in too much of a hurry. She was busy, and she wanted to finish the work, so she did not pay enough attention to the problem.
- b) Nurse Usha should have sat down among the women and listened to their story. She should discuss tetanus with them and find out what they know about it. Do they know that it is very dangerous, and that many babies die from it?
She should explain to them about tetanus immunization and why it is good for mothers to have it.
If possible she should give examples, and show pictures of babies with tetanus.

Case Study - The newly trained TBAs

- a) Nurse Araba could visit Mrs. Nasa's husband to talk to him. She should ask him about his work, and show an interest in what he is doing. She should be positive and friendly.

Later, perhaps at another visit, she can talk about the problem of the medicine, and why it is dangerous, and why a new razor blade is required. She might invite Mrs. Nasa's husband to visit the training course, to meet health staff, and the district doctor. It may take a long time to sort this problem out.