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EPI Cold Chain Bibliography

WHO/EPI/CCIS/89.1



EXPANDED PROGRAMME ON IMMUNIZATION



**EPI COLD CHAIN
BIBLIOGRAPHY**

1989

Printed November 1989

Ordering Code: WHO/EPI/CCIS/89.1

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INFORMATION AND TECHNICAL SERIES

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INTRODUCTION

This Bibliography is a guide to currently available cold chain documents which have been produced in the following series:

- WHO UNICEF Technical Series
- Cold Chain Information Series
- Cold Chain Training Series

For ease of reference, Technical and Information Series documents have been listed by subject, Training Series by course. Audio visual materials have also been included and are listed by type.

A small selection of related documents (some of which form part of other series, such as the Mid-Level Management and Immunization in Practice series) has also been listed.

A new section in this 1989 edition describes two computer programmes, especially designed for use in the EPI, which are now available from our stocks.

A NOTE ON ORDERING DOCUMENTS

A blank order form is enclosed for this purpose.

English and French documents and audio visual materials may be ordered from the WHO Regional Offices or:

World Health Organization
Attention: EPI/Cold Chain
1211 Geneva 27, Switzerland

Other language versions are not stocked in quantity in Geneva and should be ordered from the appropriate WHO Regional Offices, as indicated below.

Arabic documents should be ordered from:

WHO Regional Office for the Eastern Mediterranean Region
Attention: EPI
P O Box 1517
Alexandria 21511, Arab Republic of Egypt

Spanish documents should be ordered from:

WHO Regional Office for the Americas
Attention: EPI
525, 23rd Street NW
Washington DC 20037, United States of America

For a very limited number of documents, translations have been made into other languages, such as Swahili and Portuguese. These language versions are not stocked in quantity. One master copy is kept in EPI/Geneva and limited numbers are photocopied in response to requests.

COSTS

Small quantities will be supplied free of charge; large quantities will be billed at the prices indicated at the beginning of each section.

The prices listed have been revised to reflect the recent increases in printing costs, so will vary in some instances from the prices given in documents printed earlier, such as the EPI Training Information Sheets and previous issues of the Bibliography. All charges will be billed at the 1989 Bibliography prices.

INFORMATION AND TECHNICAL SERIES DOCUMENTS

PRICE DETAILS

**Small quantities & all CCIS series documents,
free of charge**

**Large quantities of other documents,
US\$2.00 per copy**

GENERAL EQUIPMENT AND COLD CHAIN INFORMATION

COLD CHAIN NEWSLETTERS

A Cold Chain Newsletter, with information on activities and current developments in the EPI Cold Chain, is produced quarterly in English and French. A complete listing of subjects covered per issue is included as Annex 3 to this Bibliography. Anyone wishing to receive this on a regular basis should notify EPI Geneva.

CCNL/(Month/Year); English, French

PRODUCT INFORMATION SHEETS

The Cold Chain Product Information Sheets are an essential reference for people buying equipment for the vaccine cold chain. The 1989/90 revision contains details on 119 items of equipment for the cold chain and includes comprehensive guidelines on how to choose equipment. This publication is updated on an annual basis and addenda are issued periodically with information on new equipment as it becomes available.

WHO/UNICEF/EPI.IT.S/1; English; 154 pages; 1989/90

[French in preparation]

STANDARD EQUIPMENT SPECIFICATIONS AND TEST PROCEDURES

This is the first edition of the standard performance specifications and test procedures which are now used as qualifying criteria for inclusion of equipment in the EPI Product Information Sheets. It contains general specifications for the most widely used EPI equipment, and laboratory test procedures to match them. Addenda containing amendments and new specifications and procedures will be issued periodically and it is planned to revise and reprint this document on an annual basis.

WHO/UNICEF/EPI.IT.S/5; English; 176 pages; 1988

[French in preparation]

EPI TRAINING INFORMATION SHEETS

This document, with its comprehensive listing of EPI training materials produced by WHO, UNICEF and others, is an essential resource guide for anyone planning EPI training. Each course or item is listed on a separate sheet, with full details on availability, cost, objectives, requirements, length of time necessary, languages available, etc.

WHO/UNICEF/EPI.TS/4; English; 22 pages; 1986/87

[French in preparation]

MANAGE THE COLD CHAIN

This training booklet on the cold chain, which forms part of the EPI Mid-Level Managers Training Course, is the most comprehensive general training document on the cold chain. It includes descriptions of new equipment, with emphasis placed on maintenance; it also gives information on the use of temperature indicators.

ML/CC (EPI/MLM/CC/Rev.2), ; English, French, Spanish; 99 pages, Revised 1985

RESEARCH AND DEVELOPMENT STATUS REPORT : BIOTECHNOLOGY

Progress on activities and plans for research and development in the field of biotechnology for the EPI are outlined briefly (as at March 1988). Areas of research covered include injection technologies, energy management for the cold chain, kerosene refrigerators, development of higher performance voltage regulators, generator systems and light motor vehicle transport.

WHO/EPI/CCIS/88.1; English; 7 pages; 1988

GENERAL GUIDELINES*

VEHICLE REQUIREMENTS FOR THE EPI

A summary document, written jointly with UNICEF, which gives helpful guidelines on the selection of vehicles for the EPI.

WHO/EPI/CCIS/86.4; English, French; 7 pages; 1986

A GUIDE TO ESTIMATING CAPACITY OF EQUIPMENT REQUIRED FOR STORING AND TRANSPORTING EPI VACCINES

This paper describes how to calculate vaccine volumes at each level of the cold chain. It is an important document for anyone involved in planning and buying equipment for storing and transporting vaccines.

WHO/EPI/CCIS/86.3; English, French; 11 pages; 1986

ORGANIZING A COURSE ON REFRIGERATOR REPAIRS

This paper describes how to organize a training course in refrigerator repair and maintenance, using WHO/EPI training materials (User's Handbooks and Repair Technicians Handbooks). Guidelines are given on the number of people per course, the facilities required, the tools that are needed etc. A countdown of actions that should be taken before the course can begin is also included. (Note: This document was written before the solar modules existed, so it does not include guidelines for solar refrigerator repair courses.)

EPI/CCIS/82.9/Rev.1; English, French; 23 pages; 1982

* See also under section on *EQUIPMENT* for guidelines on the use of specific equipment.

GUIDELINES ON INTERNATIONAL PACKAGING AND SHIPPING OF VACCINES FOR THE EPI

Joint WHO/UNICEF guidelines which aim to improve the standards of international vaccine shipments. Guidelines are given on insulated packaging standards, storage volume standards, package labelling and recommended shipping procedures. An essential document for those involved in EPI vaccine procurement procedures. **EPI/CCIS/81.4/Rev.2; English, French; 2 pages; Revised 1986**

GUIDELINES FOR ESTABLISHING NATIONAL AND REGIONAL VACCINE STORES

A complete review of problems and solutions in establishing vaccine stores. Subjects covered include how much space is needed, what equipment is required, how to purchase and install a cold room, and how to improve an existing cold room. **EPI/CCIS/80.15/Rev.2; English, French; 26 pages; Revised 1986**

EQUIPMENT

ALARM SYSTEMS

TECHNICAL REPORT ON AN ALARM SYSTEM TO BE USED WITH VACCINE THERMOMETER RECORDERS AND THERMOMETERS

A description of a tested alarm system suitable for vaccine stores and refrigerators in tropical countries. Installation and operating instructions are also given.

WHO/EPI/CCIS/79.4; English, French; 3 pages; 1979

INDICATORS

VACCINE COLD CHAIN MONITOR

This document describes the Vaccine Cold Chain Monitor which is packed with shipments of DPT, BCG, measles and polio vaccine supplied by WHO and UNICEF to register temperature changes during its journey down the cold chain, from manufacturer to final user. The document describes how the monitor works and how to interpret the colour changes; it also includes instructions for vaccine manufacturers on how to use and store them. (A training guide on how to use this monitor also exists as Module 27 in the training course materials for cold chain and logistics for primary health care.)

EPI/CCIS/85.1/Rev.5; English, French; 10 pages; Revised 1988

PROTOCOL FOR A COLD CHAIN REVIEW USING VACCINE COLD CHAIN MONITORS

This document describes a method for using vaccine cold chain monitors for cold chain reviews. These reviews take 6-7 months to complete and analysis of the results provides detailed information on the status of a nationwide cold chain.

EPI/CCIS/85.2; English, French; 8 pages; 1985

CHEMICAL INDICATORS FOR MONITORING THE COLD CHAIN

This paper reviews the current status of field trials and feedback on routine use of the cold chain monitor, the DT/TT vaccine shipping indicator, the freeze-watch indicator, the low temperature monitor (LTM) and the liquid crystal monitor. It includes a description of each type, its function and use, and summarises the results of laboratory tests.

EPI/CCIS/83.8/Rev.1; English; 13 pages; Revised 1987

[French in preparation]

<h2>KEROSENE REFRIGERATORS</h2>
--

DEVELOPMENT OF FIBERGLASS WICKS FOR VACCINE REFRIGERATORS

Test results are given for four types of fiberglass wicks. These wicks have a working life of up to 3 years and cost about half the price of cotton wicks. Three of the four types work well, but the fourth type (for the Kosmos 8" burner) has a higher fuel consumption. Tests included comparison of heat output, fuel consumption, exhaust gases and reduction in length after burning.

WHO/EPI/CCIS/86.1; English, French; 4 pages; 1986

HOW TO CONVERT A REFRIGERATOR FROM KEROSENE TO GAS OPERATION

This booklet gives instructions for a skilled technician on how to convert two types of kerosene refrigerator (Sibir K230T and Electrolux RAK100) to gas operation. Detailed instructions are given on which parts to order and which can be locally made, how to fit the new parts, and how to test the refrigerator before releasing it for use in the cold chain.

CCXT/2; English, Arabic; 69 pages; 1983

SOLAR REFRIGERATORS

SOLAR POWERED REFRIGERATORS FOR VACCINE STORAGE AND ICEPACK FREEZING -- -- STATUS SUMMARY JUNE 1985

Solar powered refrigerators are an important potential solution to the problems of poor fuel quality and fuel shortage in areas where vaccine must be stored and icepacks are needed for the transport of vaccine to immunization sites. This document summarizes the situation (as at June 1985) on field tests and trials on photovoltaic powered refrigerator systems which have been specifically designed for this purpose.

WHO/EPI/CCIS/85.4/Rev.1; English, French; 27 pages; 1985

SOLAR REFRIGERATORS FOR THE COLD CHAIN; PRE-FEASIBILITY STUDY

This document will cover the choice of solar equipment and give guidelines on when and how to select it. Such subjects as budgetting, procurement, recruitment and training, relative to the installation and use of solar equipment, will also be included.

Future WHO/UNICEF Technical Series document; in preparation

GUIDELINES FOR SOLAR COLD CHAIN INSTALLATION INFRASTRUCTURE

This document, which will complement the above document, will cover the operational components of the solar refrigerator programme, assuming that procurement has been initiated and the programme planned. The aim of this document is to give guidance on the installation of solar refrigerators, from the managerial rather than the technical aspect.

Future WHO/UNICEF Technical Series document; in preparation

SYRINGES AND STERILIZATION

SYRINGES, NEEDLES AND STERILIZATION

This training module is part of the Immunization in Practice series (Module 2) and has been revised and rewritten to include extensive instruction on the use of steam sterilizers and reusable plastic syringes. Used in conjunction with the Slide Set on Sterilization it constitutes a comprehensive and significant guide on the subject.

Module 2 - IM/2 (EPI/PHW/84.2/Rev.1); English, French; 49 pages; Revised 1987

EVALUATION OF INJECTION TECHNOLOGIES

Summary report of 2nd meeting of a group of WHO advisers to review the proposals presented by industry and private inventors on the development of injection technologies to minimize the risk of cross infection. (The summary report of the 1st meeting of this group is also included in this document as an Annex.)

WHO/EPI/CCIS/87.2; English; 14 pages; 1987

CHOICE OF INJECTION EQUIPMENT

This document, which is the official WHO and UNICEF policy statement on the choice of injection equipment, gives detailed technical guidelines to purchasers of syringes and needles.

WHO/UNICEF/EPI.TS/2; English, French, Spanish; 7 pages; 1986

EPI SYRINGE AND STERILIZER STUDY

Report of laboratory tests and field trials of plastic reusable syringes and steam sterilization equipment developed for the EPI.

WHO/EPI/CCIS/85.6; English, French; 27 pages; 1985

SUMMARY REPORT ON JET INJECTOR TESTING IN THE LABORATORY AND IN THE FIELD

This document summarizes tests on four models of jet injector which were subjected to 120,000 shots in a laboratory and 240,000 shots in the field (Ghana). The injectors were monitored for variations in dosage, jet velocity, frequency of breakdown and spare part consumption. Two failed before 10,000 shots had been completed; the remaining two failed before 30,000 shots.

WHO/EPI/CCIS/80.14; English, French; 10 pages; 1980

PORTABLE STEAM STERILIZERS

Instructions for the use of steam sterilizer and sterilizeable plastic syringes. This book is supplied as an instructional guide with each steam sterilizer supplied by Prestige Medical. It can also be used in training nurses and health assistants who are responsible for sterilization of injection equipment. Free in small quantities from WHO/EPI; UK£1 per copy for larger quantities. Also available direct from Prestige Group Ltd., Prestige House, Medical Division, 14/18 Holborn, London EC1N 2LQ, United Kingdom.

Booklet CCXT/4; English, French; 20 pages; 1986

HOW TO BOIL INSTRUMENTS

A short training booklet designed for nurses and vaccinators using the boiling method for sterilization. It outlines the steps to follow in order to ensure that immunization equipment is properly sterilized.

Booklet CCXT/1; English; 11 pages; Revised 1988

TRAINING COURSES

PRICE DETAILS

Small quantities, free of charge

**Large quantities, US\$2.00 per module plus
airfreight costs**

TRAINING COURSE ON LOGISTICS AND COLD CHAIN FOR PRIMARY HEALTH CARE

This course, which is designed for health personnel engaged in primary health care, concentrates on the logistics of five programmes: Malaria Action Programme, Diarrheal Diseases, the Expanded Programme on Immunization, Maternal and Child Health, and Essential Drugs. It is made up of independent booklets or modules which cover some of the tasks and techniques essential to the efficacy of primary health care. Since most of the modules are complete in themselves, courses of one to ten days can be given with modules selected in accordance with training needs and constraints.

Module Number	Title
01.	How to estimate requirements for an existing store (34 pages)
02.	How to store supplies (38 pages)
03.	How to distribute supplies (12 pages)
04.	How to keep records and calculate wastage (18 pages)
05.	How to control quality of stocks (21 pages)
06.	How to estimate requirements for the first time (9 pages)
07.	How to estimate chloroquine requirements (14 pages)
08.	How to estimate ORS packet requirements (12 pages)
09.	How to estimate vaccine requirements (12 pages)
10.	How to estimate contraceptive supply requirements (14 pages)
11.	How to estimate essential drug requirements (19 pages)
12.	The cold chain game (24 pages)
13.	How to improve communication (10 pages)
13.1	Annex to above module (4 pages)
14.	How to look after a compression refrigerator (11 pages)
15.	User's handbook for compression refrigerators (27 pages)

16. How to look after a kerosene refrigerator (22 pages)
- 17A. User's handbook for kerosene refrigerators, Electrolux RAK 1302 (67 pages)
- 17B. User's handbook for kerosene refrigerators, Sibir S2325 (35 pages)
18. How to look after a gas refrigerator (27 pages)
19. User's handbook for gas refrigerators (51 pages)
20. How to keep stocks of spare parts (35 pages)
21. How to look after a cold store (15 pages)
22. User's handbook for cold stores (54 pages)
23. Instructor's guide
24. Evaluation questionnaire (4 pages)
25. ---
26. User's handbook for photovoltaic refrigerator (23 pages)
27. How to use the vaccine cold chain monitor (18 pages)

LANGUAGES:**English, French****modules 1-27****Arabic****modules 1-24****Portuguese****modules 14, 16, 18, 21****Spanish****modules 15, 17, 19, 22****Swahili****modules 15, 17, 19, 22**

USER'S HANDBOOK SUB-SERIES

This sub-series of booklets comprises the following "How to look after" and "User's handbook" modules:

- | | |
|----------------|--------------------------------|
| Modules 14/15: | For compression refrigerators |
| Modules 16/17: | For kerosene refrigerators |
| Modules 18/19: | For gas refrigerators |
| Modules 21/22: | For cold stores |
| Modules 25/26: | For photovoltaic refrigerators |

If used independently of the PHC logistics course (described above), these booklets form the basis of a 1-3 day course to train health centre staff in looking after their refrigerators/cold rooms and performing minor repairs with simple tools. Daily, weekly and monthly maintenance tasks are described in detail, with appropriate illustrations. Fault-finding charts are also included in order to help users can get the best performance from their equipment. (For organization of this course, see document EPI/CCIS/82.9 Rev.1, listed under General Guidelines above.)

LANGUAGES:

- | | |
|---------------------|--|
| English, French | all modules |
| Arabic | modules 14, 15, 16, 17, 18, 19, 21, 22 |
| Portuguese | modules 14, 15, 18, 21 |
| Spanish and Swahili | modules 15, 17, 19, 22 |
- Blank version available for overprinting in any language

REFRIGERATOR REPAIR TECHNICIANS COURSE

This series of modules is designed to help technicians learn to make the most radical repairs to compression and solar refrigerators.

---- FOR CONVENTIONAL COMPRESSION REFRIGERATORS

The following 7 modules (A,B,C,D,E,F,G) make up a 10 day training course for compression refrigerator repair technicians.

- A. Servicing and repair techniques (91 pages)
- B. Faults and fault finding (29 pages)
- C. Repair work (44 pages)
- D. Spare parts (34 pages)
- E. Task sheets and progress tests (46 pages)
- F. Instructors handbook (86 pages)
- G. Spare parts lists (loose leaf file) (96 pages)

---- FOR SOLAR REFRIGERATORS

The following three modules (E/Add.1, F/Add.1 and H) provide the basis for a 5 day course for solar refrigerator repair technicians.

- E/Add.1 Task sheets on photovoltaic refrigerators (24 pages)
- F/Add.1 Instructor's notes for photovoltaic refrigerators (23 pages)
- H. Fault-finding and repair of photovoltaic refrigerator (56 pages)
- I. Installation handbook for photovoltaic refrigerators (110 pages)

LANGUAGES:

English, French	all modules
Arabic, Portuguese and Spanish	modules A-G
Portuguese	modules E/Add.1, F/Add.1, H

COMPUTER SOFTWARE

PRICE DETAILS

Small quantities, free of charge

Large quantities, US\$25.00 per diskette

Two computer programmes have been especially designed for the EPI cold chain and can be used on any IBM or compatible machine with 512 KB of Random Access Memory. Each programme is available on a 5 1/4 inch diskette and is accompanied by a detailed manual.

EPICost

Software for costing an immunization programme

EPICost has been designed to give the experienced health professional a tool to estimate the costs of the EPI. The software is based on Lotus 1-2-3 version 2.1 and consists of a spreadsheet into which the programme manager types the capital and recurrent costs of the different parts of the EPI - at national, regional, district, health centre and outreach levels.

As a guide for the programme manager to investigate areas of the programme that seem to have costs which are unrealistically high or low, the software then calculates (in figures and percentages) where the EPI budget is being spent. It estimates the cost per fully immunized child, as well as the funding requirements from external resources.

EPIC

Software for analysing cold chain monitor studies

To make an assessment of the cold chain, this software analyses the data on the vaccine cold chain monitor cards after they have been used. For further details see the *Protocol for a cold chain review using vaccine cold chain monitors*, reference WHO/EPI/CCIS/85.2.

There are many possible outputs from EPIC, but the principal ones are:

- a profile of failures for the whole cold chain;
- a profile of cold chain failures for each province;
- a profile of cold chain failures for each district;
- effectiveness of vaccine storage at each level of the cold chain;
- delay in storage at each level;
- effectiveness of, and delay in, vaccine transport.

This software has been used mostly in industrialised countries where the cold chain failures are relatively rare events and are often difficult to detect.

AUDIO VISUAL MATERIALS

PRICE DETAILS

**Prices are given separately for
each type of material.**

FILMS and VIDEOS

Films and videos are available in colour as 16mm optical sound track or VHS type video cassettes, priced individually as indicated below.

HOW VACCINES ARE MADE

This film shows the great care that goes into manufacturing vaccines for the EPI, and ends with the vaccine being taken to the airport to be sent to countries around the world where it will be used. The story of the vaccine's journey is continued in the second cold chain film, "How vaccines should be handled", which is described below.

30 minutes, English only;

Film-CCFI/1: US\$500; Video/CCVI/1: US\$70

THE COLD CHAIN

(or HOW VACCINES SHOULD BE HANDLED)

This film describes the cold chain from the airport where the vaccine arrives to a remote village in Ghana where it is used. It illustrates the precautions that have to be taken and the kinds of mistakes that can occur in transporting and storing vaccines. (It should be noted that this film was made almost ten years ago and equipment and techniques used at that time have changed considerably.)

30 minutes; English, French;

Film-CCFI/2: US\$ 660; Video/CCVI/2: US\$ 70

THE COLD CHAIN

This animated colour film is designed to reinforce the idea that, if vaccines are not kept cold, the children who receive them will not be protected against the diseases they prevent.

6 minutes;

Film-CCFI/3: US\$120; English, French, Arabic, Portuguese, Spanish;

Video-CCVI/3: US\$40; English, French, Arabic

SLIDE SETS

PRICE DETAILS

Small quantities, free of charge

Large quantities US\$15 per set of 48 slides

THE COLD CHAIN

A set of 48 slides with a comprehensive accompanying text which concentrates on two aspects of the cold chain: how to look after vaccine and how to look after cold chain equipment.

CCSS/1; English; French in preparation; Revised 1988

STERILIZATION SLIDE SET

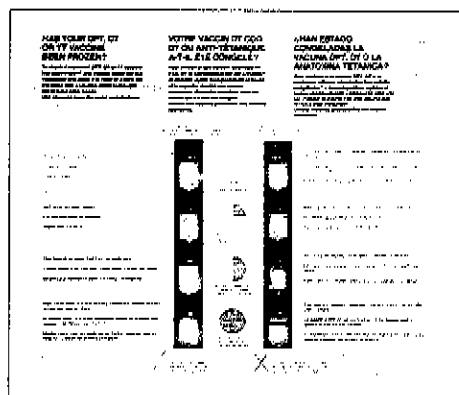
Steam sterilization of reusable syringes and needles has been adopted as the preferred global policy of the EPI and over 100,000 portable steam sterilizers have been distributed to the field in the last two years. The sterilization slideset is the most recent addition to our range of training materials and comprises 48 slides, packed in an A5 plastic folder with a bilingual commentary (French and English). It is intended to be used during the practical training of health workers in the use of steam sterilizers and reusable plastic syringes. The first 26 slides are focussed on the process of loading the sterilizer and conducting a sterilization cycle. The remainder of the slides are directed towards the sterile techniques to be followed when assembling syringes for use, and the mechanical cleaning of the syringes and needles.

CCSS/2; English and French; 1988

POSTERS

PRICE DETAILS

Small quantities, free of charge
 Large quantities, US\$300 per 1,000 posters or
 US\$600 per 1,000 foldouts



HAS YOUR DPT OR TT VACCINE BEEN FROZEN?

A multilingual poster showing a simple test that can be done in a health centre to see if DPT or TT vaccines have been frozen and, as a result, are no longer potent.

CCPS/2; English, French, Spanish



LOOK AFTER YOUR COLD CHAIN EQUIPMENT

A foldout poster that uses photographs from the cold chain slide set (described on page 28) to show health workers how to get the best performance from a vaccine refrigerator.

CCPS/4; English, French, Portuguese



LOOK AFTER YOUR VACCINES EVERY DAY
LOOK AFTER YOUR VACCINES EVERY WEEK
LOOK AFTER YOUR VACCINES EVERY MONTH

A set of three comic strip style posters to remind field level health workers of the steps to be taken every day, week and month to ensure that vaccine is available in the proper quantities and is properly protected.

CCPS/5, 6, 7; English only, French version discontinued due to lack of demand

Blank version available for reprinting in any language



LOVE YOUR REFRIGERATOR

A poster designed to give the idea that a refrigerator should be cared for - "it needs love too"!

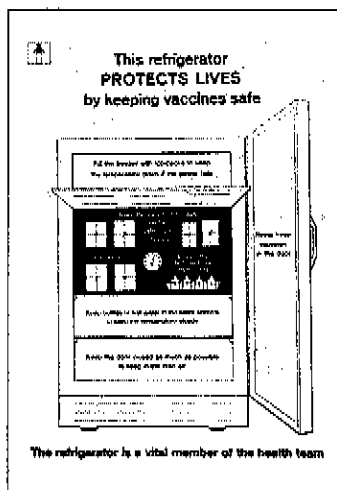
CCPS/8; English, French

Blank versions available for overprinting in any language

THIS REFRIGERATOR PROTECTS LIVES

A poster intended for the door of a vaccine refrigerator. It gives instructions on how to load the refrigerator to get the best performance.

CCPS/12; Arabic, English, French, Portuguese, Spanish





RINSE, CLEAN, THEN STERILIZE (*boiling method*)

RINSE, CLEAN, THEN STERILIZE (*pressure method*)

These two posters have been designed to encourage better sterilization procedures in health centres. Poster CCPS/10 depicts sterilization by the boiling method and CCPS.14 by steam.

CCPS/10 (*boiling method*)

CCPS/14 (*steam method*)

English, French



VACCINE VIALS. FINISH OR DESTROY OPEN VIALS

ONE SYRINGE, ONE NEEDLE FOR EACH INJECTION

A set of two posters designed to encourage better immunization procedures in health centres.

CCPS/11 & 13; English, French

STICKERS

PRICE DETAILS

Small quantities, free or charge
Large quantities, US\$65 per 1,000 stickers.



DEFROST WHEN ICE BUILDS UP.

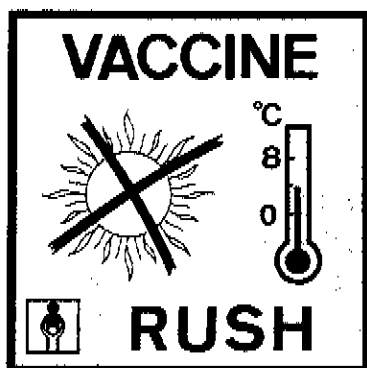
A sticker for a refrigerator door.
CCST/1; English, French,
Portuguese, Spanish

STOP! DO YOU NEED TO OPEN IT?

A sticker for a refrigerator
door.

CCST/2; Arabic, Chinese,
English, French, Spanish

STOP
do you need
to open it?



VACCINE. RUSH!

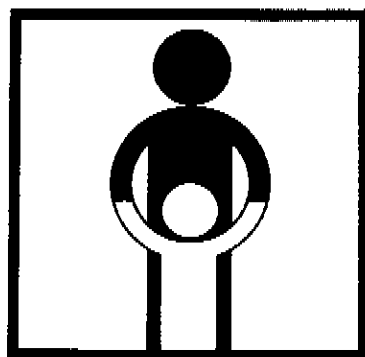
A sticker for vaccine packages giving a warning about proper handling. Accepted by IATA for air transport.

CCST/3; Arabic, English, French, German, Spanish

EPI LOGO

The EPI logo or Programme symbol is a sticker which is very much in evidence wherever the EPI is in operation ---- used in identifying equipment, documentation, etc.

CCST/4 (one version only, no text)



TRAINING AIDS

PRICE DETAILS

Free of charge

COLD CHAIN MONITOR BLOCKNOTES

Blocknote pads of cold chain monitor cards printed on regular paper for use in training in the use of monitors. These "mock paper monitors" avoid the wastage and cost otherwise involved when actual monitor cards are used for this purpose.

CCXT/3; Arabic, English, French, Portuguese, Spanish

ANNEX 1

COLD CHAIN MATERIALS AVAILABLE FROM OTHER SOURCES

AHRTAG "HOW TO" BOOKS

The following three books relating to the cold chain have been prepared by AHRTAG (Appropriate Health Resources and Technologies Action Group, UK) and requests to purchase copies should be addressed directly to:

Teaching Aids at Low Cost (TALC)
P O Box 49
St Albans
Herts AL1 4AX
United Kingdom

HOW TO LOOK AFTER A REFRIGERATOR

This book gives step-by-step instructions on the care and maintenance of kerosene, gas and electric refrigerators.

Author: Jonathan Elford; **English, Spanish, Turkish;** 58 pages; 1980

HOW TO LOOK AFTER A HEALTH CENTRE STORE

This book includes all aspects of storekeeping, including how to order supplies and how to look after and dispense them.

Author: Anthony Battersby; **English;** 72 pages; 1983

HOW TO CHOOSE AND MAKE A COLD BOX

This manual contains clearly presented text and illustrations to help programme managers, technicians and others working in immunization programmes to choose and make the most appropriate cold boxes for vaccine transport in their area.

Authors: Anthony Battersby and Paul Jansdaal; English; 79 pages; 1983

TALC SLIDE SETS

TALC has prepared two slide sets on the cold chain. One set, The Cold Chain, is also available from EPI/Geneva and has been listed in the section on Slide Sets in this Bibliography. The other set, described below, is not stocked by EPI/Geneva and may be ordered directly from TALC at the address given on the previous page.

THE COLD CHAIN - TARGET DISEASES

This set of 48 slides combines slides from the EPI disease recognition slide set with cold chain slides on the maintenance of equipment and storing of vaccines.

English only

ANNEX 2

LIST OF (PUBLISHED) ARTICLES ON THE COLD CHAIN

Over the years a number of articles on the EPI cold chain have been printed in various publications and, for the record, these are listed below.

- Improved stability of freeze-dried measles vacc., WHO WER 46, 1979
- Heat stability of vaccines, WHO WER 33, 1980
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- Maintaining and improving the cold chain, WHO WER 45, 1981
- Vaccine cold chain management indicators, WHO WER 2, 1982
- How much does cold chain equipment cost, WHO WER 31, 1983
- Freezing icepacks, WHO WER 46, 1983
- Inclined refrigerators, WHO WER, 9, 1984
- Cold chain evaluation, Tunisia, WHO WER 21, 1984
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- Fiberglass wicks, WHO WER 40, 1986
- Joint WHO/UNICEF statement on immunization and AIDS, WHO WER 9, 1987
- Changing needles but not the syringe, WHO WER 26, 1987
- Cold chain evaluation, Nepal, WHO WER 9, 1988
- Cold chain evaluation, India, WHO WER 26, 1988
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ANNEX 3

LIST OF ARTICLES IN EPI COLD CHAIN NEWSLETTERS, BY SUBJECT

(December 1986 - August 1989)

- Audio visual: Electrolux health centre wall chart, May-87
- Audio visual: sterilization slide set, Feb-88
- Cold room repair services (Thermoteknik, Sweden), May-87
- Correction: to article, May 87, TST sterilization indicator, Feb-88
- Correction: To PIS 1988, page 140 re sterilizable syringes, Jul-88
- Correction: to PIS 88/89 re listing portable sterilizers, Jul-88
- Correction: WHO/UNICEF Tech.Series 2 (injec. equip.), May-87
- Documents (training): User's handbook for photov. refrig., Jul-88
- Documents (training): Fault finding & repair photov. refrig., Jul-88
- Documents (training): Instructors Notes, Jul-88
- Documents (training): Syringes, needles & sterilization, Feb-88
- Documents (training): Task sheets on photovoltaic refrig., Jul-88
- Documents (training): User's handbook for kerosene refrig., Feb-88
- Documents produced 1986, Dec-86
- Documents: Addendum to PIS 1986/87, Second, Feb-88
- Documents: Addendum to PIS, 1986/87, First, May-87
- Documents: EPI CC Bibliography 1987 (English), May-87
- Documents: EPI CC Bibliography, 1987 (French), Feb-88
- Documents: EPI Training Information Sheets, 1986/87, Feb-88
- Documents: Guidelines for solar CC instal. infrastructure, Jul-88
- Documents: Performance Specs & Test Procedures, 1988, Feb-88
- Documents: Product Information Sheets 1986/87, Dec-86
- Documents: Product Information Sheets, 1989/1990, Aug-89
- Documents: Solar refrigerators for CC - prefeasibility study, Jul-88
- Documents: WHO/UNICEF Technical Series, Dec-86

- Electricity consumption, Dec-86
- Electrolux after-sales service, Dec-86
- Electrolux health centre wall chart, May-87
- Electrolux RCW42EK refrigerators, improvements to, Jul-88
- Electrolux RCW42EK, problems with, May-87
- Electrolux, new products, May-87
- Energy, selling to pay for EPI, Feb-88
- Equipment bought during 1986 (UNIPAC data), Dec-86
- Equipment manufacturing, Dec-86
- Eutectics, poor replacement for water ice in icelined freezers, Jan-89
- Freezing, reduction of risk, Jul-88
- Gas conversion kit, Jul-88
- Gas level indicator, Dec-86
- Gas level indicator (failure of), May-87
- Gas, bottled, from sub-contractor (Zimbabwe), Dec-86
- Generator sizing - ready reckoner, May-87
- Icepack shortage, solution to (Uganda), Dec-86
- Icepacks, warmer, Jul-88
- Immunization days: icepacks and vaccine carriers, Jul-88
- Immunization kit, emergency (Oxfam), Dec-86
- Jesty, Benjm. (cow pox inoculation), Jul-88
- Jet injectors - low workload, low cost, Aug-89
- Kerosene & gas refrig., performance of Brazilian "Consul", Jan-89
- Kerosene - modification of Elec. RCW42EK., Aug-89
- Kerosene - watch this space (Casa Hipolito), Jan-89
- Kerosene burner modifications (burner kit), Jul-88
- Kerosene improvements, field assessment of, Jul-88
- Kerosene refrigerator improvements & gas conversion kits, Jan-89
- Kerosene refrigerators, thermostat control for, May-87
- Kerosene supply revolutionized (Mozambique, Tanzania), Dec-86
- Kerosene thermostat unacceptable to manufacturers, Jul-88
- Kerosene, low grade burner modification succeeds!, Jan-89
- Kerosene/essential drug supply links (Guinea), Dec-86
- Kerosene: help for refrigerators already in field, Jul-88
- Kerosene: improvements to existing RCW42EK refrigs., Jul-88
- Kerosene: water pollution filter, Jul-88
- Lost opportunities and the cold chain, Jan-89

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- Microcomputer telecommunications, EPI/Geneva, Feb-88
Monitor blocknotes, Feb-88
Monitor card, Dec-86
Motorcycle questionnaire, Jan-89
Motorcycles, light, speed the EPI, Jan-89
Needle hubs, plastic, Feb-88
Needles for EPI, standardized, May-87
Neonatal tetanus, immunize all women of childbearing age, Jul-88
Nepal - Mr Armin Man Shreshta, Aug-89
Ozone - depletion of the ozone layer and the cold chain, Aug-89
Polio - Australian high-tech for polio specimen collection, Aug-89
Polio - freeze-thaw tests begin, Aug-89
Polio - vaccine indicator, progress and plans, Aug-89
Polyfoam - vial holes in 0.4 litre packs, Jan-89
Press article: Pre-electrification in rural areas ..., Jul-88
Refrigerators - a new range of chest freezers (Caravell), Aug-89
Refrigerators - improvement of domestic refrig. (Icasa), Aug-89
Refrigerators - missed opportunities and the cold chain, Aug-89
Refrigerators - new Electrolux development, Aug-89
Reviews (using CC monitors, EUR), Feb-88
Reviews, analysis of monitors using EPIC software, Jul-88
Reviews, with CC monitors, Dec-86
Solar - mobile cold chain (NAPS refrigerators), Aug-89
Solar absorption refrigerator (Comesse Soudure), Aug-89
Solar energy ""fuel gauge"" under development, Jan-89
Solar icelined refrigerator (Vestfrost), Aug-89
Solar refrigerators in the Western Pacific Region, Aug-89
Solar refrigerators without batteries, Jul-88
Solar refrigerators, long term monitoring for, Feb-88
Solar steam sterilizers, Jul-88
Solar, battery tests, Jul-88
Solar, NAPS field test with camels (Chad), Jul-88
Solar, NAPS field test with refrigerator in Bolivia, Aug-89
Solar, thermal refrigerators/freezers, Jul-88
Staff changes in EPI/Geneva, Feb-88
Sterilization at high altitude, May-87
Sterilization indicators (TST indicators), Jul-88

- Sterilization indicators (TST), May-87
- Sterilization update, Aug-89
- Sterilization, steam, India, Dec-86
- Sterilization: hard times with hard water, Feb-88
- Sterilizer drum setback, Jul-88
- Sterilizers using electrical energy, May-87
- Sterilizers, hard water treatment for steam sterilizers, Jul-88
- Sterilizers, solar steam, Jul-88
- Sterilizers, spares for, Feb-88
- Sterilizers, steam, increase in capacity and accessory range, Feb-88
- Suzuki again - Update on 4WD problems, Jan-89
- Suzuki, drivers beware!, Jul-88
- Syringe (1.0ml) failure, May-87
- Syringes, auto-destruct, Aug-89
- Syringes, auto-destruct disposable, Feb-88
- Syringes, dual scale markings for 0.5ml under consideration, Jan-89
- Syringes, prefilled, Aug-89
- Syringes, progress on auto-destruct, Dec-86
- Syringes: anti-needle stick devices, Jul-88
- Syringes: auto-destruct disposable, May-87
- Syringes: auto-destruct status, Jul-88
- Syringes: incinerator box, Jul-88
- Testing - CR Labs provide test facility dedicated to EPI, Jan-89
- Testing goes public, Dec-86
- Testing, newly qualified laboratories, Jul-88
- Thermometer, development of universal EPI thermometer, Aug-89
- Thermometers, DTS liquid crystal - bargain, Aug-89
- Training - Cold chain training courses in Am, Af, Em, Sea, Aug-89
- Training courses, solar (AFR, EMR, AMR), Jul-88
- Training courses, solar (Cyprus, Mali), Feb-88
- Training modules - BP translation to Portuguese, Aug-89
- Training staff in fault-finding (Nigeria), Dec-86
- Training, kerosene refrigerator, Feb-88
- Training, steam sterilizer, Feb-88
- Training: 1st solar repair course, Mali, Dec-86
- Transport - a case of "Who knows best?", Aug-89
- Transport - excerpt from UNICEF, SCF & WHO meeting, Aug-89

- Transport - prolonging the life of light motorcycles, Aug-89
- Transport - why buy a 4x4 when you only need a bike, Aug-89
- Transport - wise men of transport express their concern, Aug-89
- UK study (UK red-faced!), Feb-88
- Vaccine carrier performance falls, Jan-89
- Vaccine carriers - Zamrock model no longer supplied, Jan-89
- Vaccine stocks, colour coded, Dec-86
- Vaccine vials, keeping upright, Dec-86
- Vaccine, more heat stable?, Dec-86
- Vestfrost ahead in iclinded refrigerator technology, May-87
- Water bottles in refrigerators (drinking habits), Feb-88
- WHO popular texts (comic style booklets), Dec-86

ANNEX 4

GUIDE TO COLD CHAIN MATERIALS BY SUBJECT

[Note: This guide lists documents and audio visual materials, but not articles.]

COLD CHAIN GENERAL

Documentation:

Cold Chain Newsletter (CCNL/Year)

Product Information Sheets (WHO/UNICEF/EPI.TS/1)

Standard equipment specifications and test procedures (WHO/
UNICEF/EPI.TS/5)

Manage the cold chain (Training module MM/CC)

A guide to estimating capacity of equipment required for storing
and transporting EPI vaccines (WHO/EPI/CCIS/86.3)

Guidelines on international packaging and shipping of vaccines for
the EPI (WHO/EPI/CCIS/81.4 Rev)

Monitor the cold chain - lifeline of EPI (EPI Update, May 1988)

Improving the cold chain (EPI/GAG/89/WP.11)

Audio-Visual:

The powerful protector (How vaccines are made) (Film/video:
CCFI/1; CCVI/1)

The cold chain (How vaccines should be handled) (Film/video:
CCFI/2; CCVI/2)

The cold chain (cartoon) (Film/video: CCFI/3; CCVI/3)

Look after your cold chain equipment (Foldout/Poster: CCPS/4)

Love your refrigerator (Poster: CCPS/8)

This refrigerator protects lives (Poster: CCPS/12)

The cold chain slide set (CCSS/1)

The cold chain - target diseases slide set (available from Talc)

EPI logo (CCST/4)

VACCINE PRODUCTION AND HANDLING

Documentation:

Guidelines on international packaging and shipping of vaccines for the EPI (WHO/EPI/CCIS/81.4 Rev)

Audio-Visual:

The powerful protector (How vaccines are made) (Film/video: CCFI/1; CCVI/1)

The cold chain (How vaccines should be handled) (Film/video: CCFI/2; CCVI/2)

The cold chain (cartoon) (Film/video: CCFI/3; CCVI/3)

Has your DPT or TT vaccine been frozen (Poster: CCPS/2)

Look after your vaccines every day/week/month (Posters: CCPS/4,5,6)

Vaccine vials. Finish or destroy open vials (Poster CCPS/11)

Vaccine Rush (Sticker: CCST/3)

TRANSPORT

Documentation:

Vehicle requirements for the EPI (WHO/EPI/CCIS/86.4)

COLD ROOMS

Documentation:

Guidelines for establishing national and regional vaccine stores (WHO/EPI/CCIS/86.3)

How to look after a cold store (Training module PH/21)

Users handbook for cold stores (Training module PH/22)

REFRIGERATORS

Documentation:

User's Handbook Sub-Series (Modules PH/14-19, 21,22,26)

Repair Technicians Training Course (Training modules (RT/A-I)

Audio-Visual:

Look after your cold chain equipment (Foldout/Poster: CCPS/4)

Love your refrigerator (Poster: CCPS/8)

This refrigerator protects lives (Poster: CCPS/12)

Defrost when ice builds up (Sticker: CCST/1)

Stop. Do you need to open it? (Sticker: CCST/2)

KEROSENE REFRIGERATORS

Documentation:

Development of fiberglass wicks for vaccine refrigerators (WHO/EPI/CCIS/86.1)

How to convert a refrig. from kerosene to gas operation, (XT/02)

How to look after a kerosene refrig. (Training module: PH/16)

Users handbook for kerosene and electric refrigerators / white flame burner (Training module PH/17A)

Users handbook for kerosene operated absorption refrigerators (Sibir S2325) (Training module PH/17B)

Audio-Visual:

Do .. Don't poster (Poster CCPS/16)

SOLAR REFRIGERATORS

Documentation:

Solar refrigerators for the Cold Chain: Pre-feasibility study (WHO/UNICEF/EPI.TS/ - in preparation)

Guidelines for solar cold chain installation infrastructure (WHO/UNICEF/EPI.TS/ - in preparation)

User's handbook for photovoltaic refrig. (Training module PH/26)

Refrigerator repair technicians course, subset for solar refrigerators (Training modules RT/E Add.1, F Add.1, H & I)

Solar powered refrigerators for vaccine storage and icepack freezing; status summary June 1985 (WHO/EPI/CCIS/85.4)

INDICATORS

Documentation:

Vaccine cold chain monitor (WHO/EPI/CCIS/85.1)

Chemical indicators for monitoring the cold chain (WHO/EPI/CCIS/83.8 Rev)

Protocol for a cold chain review using vaccine cold chain monitors (WHO/EPI/CCIS/85.2)

How to use the vaccine cold chain monitor (Training module PH/27)

Audio-Visual:

Vaccine cold chain monitor (Poster CCPS/16)

Cold chain block notes (Training aid CCXT/03)

SYRINGES AND STERILIZATION

Documentation:

- Choice of injection equipment (WHO/UNICEF/EPI.TS/2)
- Evaluation of injection technologies (WHO/EPI/CCIS/87.2)
- EPI syringe and sterilizer study (WHO/EPI/CCIS/85.6)
- Summary report on jet injector testing in the laboratory and in the field (WHO/EPI/CCIS/80.14)
- Syringes, needles and sterilization (Training module IM/2)
- Portable steam sterilizers (Booklet CCXT/4)
- How to boil instruments (Booklet (CCXT/1)
- Sterilization alert (EPI Update, July 1987)

Audio-Visual:

- Rinse clean then sterilize (boiling method) (Poster CCPS/10)
- Vaccine vials. Finish or destroy open vials (Poster CCPS/11)
- One syringe, one needle for each injection (Poster CCPS/13)
- Rinse, clean, then sterilize (pressure method) (Poster CCPS/14)

ALARM SYSTEMS

Documentation:

- Technical report on alarm system to be used with vaccine thermometer recorders and thermometers (WHO/EPI/CCIS/79.4)

COLD CHAIN REVIEWS

Documentation:

- Protocol for a cold chain review using vaccine cold chain monitors (WHO/EPI/CCIS/85.2)

TRAINING

Documentation:

- All documents listed in the Training Section, plus:
- EPI Training Information Sheets (WHO/UNICEF/EPI.TS/4)
- Manage the cold chain (Module MM/CC)
- Syringes, needles and sterilization (Module IM/2)
- Organizing a course on refrig. repairs (WHO/EPI/CCIS/82.9)
- Portable steam sterilizers (Booklet CCXT/4)
- How to boil instruments (Booklet CCXT/1)

Audio-Visual:

- All materials listed in the Audio-Visual Section may be used for training purposes